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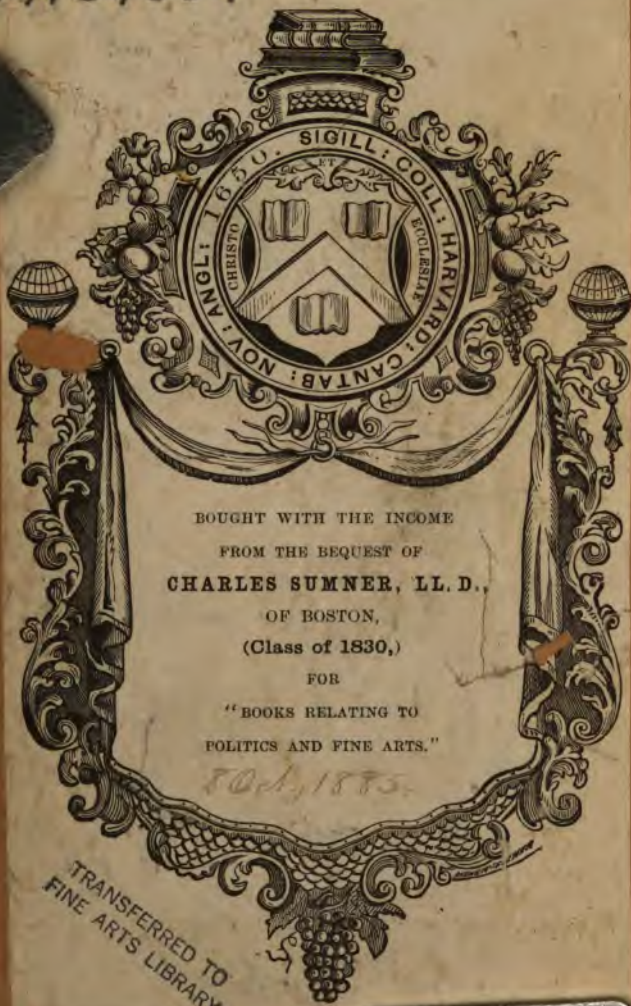
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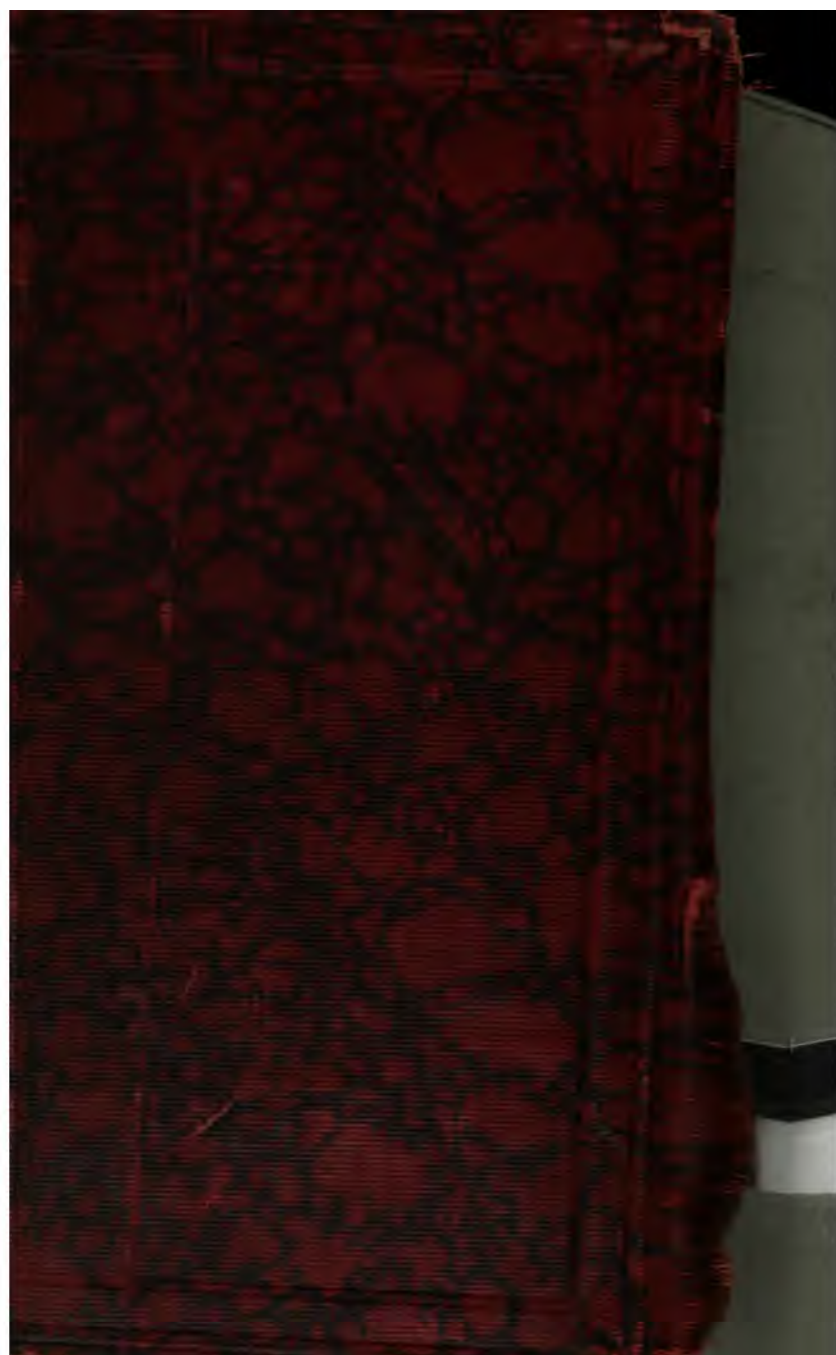
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A MANUAL

OF

ARTISTIC ANATOMY,

FOR THE USE OF

SCULPTORS, PAINTERS, AND AMATEURS

BY

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ACADEMY OF MEDICINE OF FRANCE.

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PREFACE.

THE brief Manual, on a matter of national importance, which I now venture to submit to public criticism, is simply the completion of an idea entertained by me for nearly a quarter of a century. From the time, indeed, that I first taught anatomy, or rather I ought to say, studied anatomical shapes, their import or signification, their relations to each other, and their artistic, philosophic, and utilitarian aspects, I felt convinced, instinctively as it were, that the true relation of anatomy to art, meaning Fine Art, had been misrepresented and misunderstood. But it was not until I had visited the galleries of the Louvre, and looked attentively at the Elgin Marbles, that I was in a position to support this view with an appeal to demonstration.

The Manual now completed is simply an attempt to demonstrate the true relations of anatomy to art; to show the influence which the interior of man exercises over the exterior; and, therefore, in so far is simply a school-book. But

as school-books should, if possible, be progressive, I have ventured to add to the elementary matter contained in Part I. a second and a third section, in which will be found a sketch of the nature of form as the grand element of beauty ; a theory of the beautiful ; and an analysis of the principles which must ever form the basis of a correct taste.

I have ventured to recommend a perusal of these sections to amateurs ; by whom I merely mean the general public. The remark has been often made that, in respect of works of art, there are two parties to be considered, namely, the artist and his patrons. Should the latter happen to be low in taste, of utilitarian tendencies, purely and simply ; mechanical, plodding, fond of substituting a model conventionalism for nature, the lot of the artist must ever be an unhappy one. To secure fair play for him, his patrons also ought to be lovers of true art, or be at least made sensible that there exist amongst them persons who are so. In brief, it is not the artist alone who requires instruction,—it is the public. Above all, it ought to be clearly shown to them that Posterity—the living embodiment of Time's progress and work on earth—will pass a stern, impartial, and irrevocable judgment on those nations despising literature, science, and art, whom they will class with barbarians, however powerful they

may have been politically, however wealthy and luxurious. The future historian will, it is to be presumed, criticise the present times as we do the Coptic, Greek, and Roman eras of civilization. Let us hope that, in so doing, some future Gibbon may not discover "that Britain was a land from which a love of nature and of truth had been expelled,—a fact proved by the absence of all artistic monuments of a lofty and ennobling character."

But further than this "hint to patrons," the work has no further pretensions than what its title-page indicates.

The woodcuts were designed by Dr. WEST-MACOTT, whose name is a sufficient guarantee for their correctness.

LONDON, *May*, 1852.



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DESCRIPTION OF THE WOODCUTS

CONTAINED IN THIS WORK,

WITH REFERENCES TO THE PAGES WHERE THEY ARE
TO BE FOUND.

As many of the woodcuts with which this work is illustrated were engraved for other works already published,* or in course of publication by me,† I have thought it right, with a view to correct inaccuracies as to references which could not well be avoided, to give the reader a description of them, simply as they occur in the work, independent of all reference to the text. This table, it is hoped, will be found of service to the more advanced artistic student especially.

Whilst re-examining the work with this view, the author has observed that, in the history of the articulations, the woodcut referred to in the text has been omitted. The insertion of a fuller description of the osseous surfaces forming these joints, in this table, will obviate, it is hoped, all confusion in this respect. Moreover they are joints, the mechanism of whose ligamentous apparatus can only be well comprehended by a reference to the osseous surfaces.

Page 13. Fig. 1.—The Male Skeleton ; viewed anteriorly.

Page 14. Fig. 2.—The Male Skeleton ; profile.

Page 15. Fig. 3.—The Male Skeleton ; back view.

Page 16. Fig. 4.—The Female Skeleton ; copied from Sue.

Page 17. Fig. 5.—Skeleton of the Trunk or Torso ; front view.

* The Races of Men : a Fragment. † A Manual of Human Anatomy.

Page 18. Fig. 6.—Outline of the Torso of the Venus; British Museum.

Page 19. Fig. 7.—Skeleton of the Torso; seen in profile.

Page 23. Fig. 8.—Vertebral Column; profile.

„ Fig. 9.—Vertebral Column; bac view.

„ Fig. 10.—Vertebral Column; front view.

Page 24. Fig. 11.—Section of the base of the Skull and Lower Jaw. The drawing is intended to show the anatomy and mechanism of the lower jaw, the position of the coronoid process in front, and of the condyle of the jaw as it rests in the glenoid cavity of the temporal bone. Passing between the zygomatic arch of the temporal bone and the lower jaw, a little below the condyle, the student will observe the external ligament of this articulation, and the forward position of its cranial attachment. By this beautiful and simple mechanical arrangement, the antero-posterior movements of the joint are provided for. The figure, moreover, gives a lateral view (left side) of the body of the hyoid bones; the great or inferior cornu or horn, and the smaller, to which is attached the stylo-hyoid ligament, connecting the hyoid apparatus to the basis of the skull. The angle of the jaw is connected to the stylo-hyoid ligament by a short aponeurosis. All these structures may readily be made out.

Page 25. Fig. 12.—European Head. The figure represents the cranium and face apart from each other, in order that the student may form a correct idea of the relative size and form of each, when seen in profile.

Page 27. Fig. 13.—Skeleton of the European Head, with all the bones in their natural position.

Description of the Woodcut.—*a*, Frontal bone; *b*, parietal; *c*, temporal; *d*, sphenoidal; *e*, malar; *l*, ethmoidal; *k*, lachrymal; *g*, nasal; *h*, cartilaginous partition of the nostrils; *u*, *f*, superior maxillary bone; *i*, lower jaw; *n*, portion of the left side of the face.

Page 28. Fig. 14.—The Occipital Bone. The object is to display the form and position of the great foramen or hole for the passage of the spinal marrow, and of the condyles by which the bone rests on the vertebral column. The lettering may be neglected; they have a reference to another work.*

Page 28. Fig. 15.—Articulation of the first and second Vertebrae of the Neck. The figure displays the upper surface of the atlas, and consequently the two deep excavations into which are received the condyles of the occipital bone, as seen in figure 14, the one immediately above.

Page 31. Fig. 16.—This woodcut represents the articulation of the head with the first and second vertebrae of the neck; the articulations of these with each other and with the occipital bone. The cheek ligaments which limit the rotatory movements of the head to a half-circle, at the most, may be seen extended between the summit of the tooth-like process of the second vertebra to the occipital bone.

The ligamentous apparatus here has by some been called the cruciform or cross-shaped ligament; but the cross-shaped ligament is independent of the cheek ligaments, and of the transverse, which lie in front of it. All these ligaments are of great strength; and hence the rarity of dislocation in this region.

Page 33. Fig. 17.—A section of the Vertebral Column, displaying also all its ligaments. The fibro-cartilages, upon which the strength and the elasticity of the column depend, may readily be traced in the figure. They occupy the spaces between the bodies of the vertebrae, from the third cervical to the last lumbar. The left side of the column has been removed, and by this means also the vertebral canal for containing the spinal marrow and its membranes has been displayed. A reference is made in the text to the ligaments of the pelvis, the interior of the right side of which is shown in the woodcut.

* Manual of Human Anatomy, by R. Knox.

Page 34.—The woodcuts intended to show the scapulo-humera articulation or shoulder-joint, also the elbow-joint referred to in page 35, and the wrist-joint described at page 38, could not be prepared in time for this work. In the absence of these, the student will form an accurate idea of the nature of these joints by placing before him the osseous surfaces, and drawing them carefully.

The same remarks apply to the hip-joint, knee and ankle-joints; the woodcuts for which could not be prepared in time for the coming out of the work. These joints and their ligaments are described at pages 40, 41, 42, and 43.

Page 36. Fig. 18.—Drawing of a section of the Frieze of the Parthenon; Battle of the Centaurs and Lapithæ.

Page 38. Fig. 19.—Skeleton of the Hand; dorsal.

„ Fig. 20.—Skeleton of the Hand; palmar.

Page 42. Fig. 21.—Skeleton of the Foot; dorsal surface.

„ Fig. 22.—Skeleton of the Foot; plantar surface.

Page 49. Figs. 23 and 24.—These figures give the proportions in the male and female figures. To each is attached a scale, divided into 100 parts.

Page 50. Fig. 25.—Outline of the Fingers.

„ Fig. 26.—Outline of the Toes;

To show their relative proportions. In the antique foot, the second toe is generally represented longer than in the accompanying woodcut.

Page 54. Fig. 27.—Drawing of the Living Infant; to show how greatly its proportions differ from the adult, male or female.

Page 55. Fig. 28.—Skeleton of the Infant. Many of the parts of the infant skeleton resemble in conformation the same structures in the lower animals, and abnormal or misshapen human adult forms. This has its cause in the transcendental law of unity of the organization.*

* See "Great Artists and Great Anatomists; a Biographical and Philosophical Study." J. Van Voorst, 1852.

Page 57. Fig. 29.—Outline of the Venus de Medici.

Page 63. Fig. 30.—Outline of the European Face, contrasted with that of the Negro, to illustrate the facial angle of Camper.

Page 63. Fig. 31.—Facial Angle in the Ouran-outan; Camper.

Page 64. Fig. 32.—Cranium of the Negro.

„ Fig. 33.—Cranium of the Tasmanian; Australian race.

Page 65. Fig. 34.—Cranium of the Amakoso Caffre; African race.

Page 66. Fig. 35.—Cranium of the Chenook; American race.

Page 68. Fig. 36.—Drawings of the Male and Female Ribs. When these bones are quite characteristic, it will be found that the male ribs are more arched than the female ribs, especially between the fifth and ninth on either side. It is there that the female ribs are flattened, and it is in this situation that the female waist exists. In man, when strongly formed, the ribs continue fully arched much lower down, placing his waist between the last rib and the top of the haunches or crest of the ilium. In man the back is strong; in woman, the loins.

Page 69. Figs. 37 and 38.—Drawings of the Female Pelvis.

The transverse and oblique lines drawn across these figures are intended to show the different capacities of this osseous cavity in the sexes. The upper figure gives a view from above; the lower from below, or, as anatomists term them, the abdominal and perineal exits. It is by mistake that the word *male* has been given to the upper figure: they are both female.

Page 79. Figs. 39 and 40.—These drawings represent the Sternum, front and back views. The lettering, intended for another work,* may be neglected by the artistic student.

Page 84. Fig. 41.—Outline of the Nasal Cartilages and Muscles. These cartilages form, as it were, the skeleton or framework of the nose, and are largely developed in some races

* Manual of Anatomy.

of men, and more especially in the Jew; they form, in fact, a distinctive character of his race. But it is probable that this peculiar feature was not peculiar to him (for Abraham alone could not form a race of men), but common to him, in a greater or less degree, with the Chaldee, from whom the Jew is said to have sprung; and in an especial manner, also, with the Copt, that is, the ancient Egyptian race. This is amply proved by the colossal bust of Amenoph and others, now in the Egyptian Gallery of the British Museum. In the noble antique female Greek head, the cartilaginous apparatus of the nostrils is never displayed; all is calm, smooth, and polished. The cartilages are comparatively small; the muscular apparatus but little developed. These muscles form a part of the respiratory system of muscles, and sympathise with the lungs, diaphragm, intercostal muscles, etc. The expansion of the nostrils is the first act of inspiration; the other movements follow.

Page 85. Fig. 42.—In this finely-executed woodcut, the artist, Dr. Westmacott, has given a highly artistic sketch of the muscles on whose action depends the expression of the passions. No letters of reference have been placed on this block; nor was this necessary, the text explaining the figure sufficiently. The great number and size of the muscles on the human face are remarkable, as contrasted with other animals; they are, of course, in harmony with the character of his brain, his mental and intellectual nature, his passions. An ingenious writer, whose MS. works I have seen, suggests that it is education which forms the expression. To a certain extent, the observation is, no doubt, a correct one; but it must not be too much generalized.

To the study of the actions of this complex system of muscles the artist, whether sculptor or painter, cannot bestow too much attention. In the beautiful face, though distorted with passion, the muscles do not show themselves as muscles; they give rise merely to certain forms and a certain expression.

In the figure I now speak of (page 85), the broad muscle of the neck (*latissimus colli*, *platysma myoides*) has been cut across just as it is passing over the base of the lower jawbone. By this is shown more fully the muscle descending from the angle of the mouth to the lower jaw (*depressor anguli oris*), and the powerful *masseter* muscle a short way behind it, one of the principal masticatory muscles. The orbicular muscle of the mouth and the orbicular of the eyelids require only to be mentioned. On the forehead is placed the frontal muscle; and over the ear, superior, anterior, and posterior auricular. It is almost needless to remark that all such muscles, together with those acting on the nostrils, are weak and but slightly marked in man.

Page 88. Figs. 43 and 44.—The figures in this page represent—first, the *Antique Ear*, always beautiful; secondly, the *Ear of the Ape*, as being the deformation most commonly observed in the man who may be born with a naturally deformed ear. The more remarkable peculiarity is the absence of the lobe of the ear; a part peculiarly human, and found only in man. There are other *deformations*, which the artist must be careful to avoid. Nor need we, on this account, fall into a habit of drawing a model ear; the finest ears have their *individualities*, like every other part of the human form.

The use of the external ears is not known; when finely formed, they add singularly to the beauty of the head. They are differently placed in man and in woman, and in different races of men. Notwithstanding the strong resemblance there exists between the modern Jew and the ancient Coptic busts, as may be seen in various works and in the busts themselves, the *ancient Jew*, that is, the Jew of the Pharaonic period, presented peculiarities which the Egyptian artists caricatured. Numerous individuals with the ears so formed must have been before them, otherwise the *deformed ear* would never have been represented

by the Coptic artists as a Jewish peculiarity, any more than the hideously enlarged nostrils and nose, elongated inexpressive eyes, wide negro-like mouth, and receding chin; all which peculiarities, though somewhat modified, are still observable in the Jewish race.

Page 98. Fig. 45.—The Niobe.

Page 102. Fig. 46.—Deep dissection of the Muscles of the Back of the Neck; left side. *a b*, The serratus posticus superior muscle; *c*, splenius; *d*, complexus; *e f*, top of the sacro-lumbalis and longissimus dorsi muscles.

Page 102. Fig. 47.—*a b*, splenius; *c*, complexus. These deep muscles influence the form of the neck; when fully developed, they give to it the torosity essential to beauty.

Page 104. Fig. 48.—Drawing from a bust of the Young Hercules; the finest specimen of the true athlete or prize-fighter.

Page 106. Fig. 49.—Superficial Muscles of the Front of the Neck and of the Trunk or Torso.

o, Mesial groove formed by the sternum; *s*, triangular hollow, bounded by the collar-bone, pectoral muscle, and deltoid; *a*, pectoralis major muscle; *r*, rectus abdominis of the right side, covered by the abdominal aponeurosis; *q, u, v, u v*, rectus of the left side exposed by dissection; the letters *v v* are placed on the tendinous intersections called lineæ transversæ; *e e*, external oblique muscle of the abdomen; *g*, some attachments of the serratus magnus muscle; *e e, n*, tendon of the external oblique muscle of the abdomen, forming a portion of what French anatomists have named the abdominal aponeurosis; *n n*, attachments of the external oblique muscle to the ribs and their cartilages; *w* is placed a little above the cremasteric openings.

Page 109. Fig. 50.—Superficial Muscles of the Haunch and Back of the Thigh; left side.

a, External oblique muscle of the abdomen; *b*, gluteus medius; *c*, a portion of the aponeurosis of the thigh, with which the

gluteus maximus is partly connected; *d*, vastus externus; *e f*, biceps flexor of the leg; *o m*, semi-membranosus and semi-tendinosus muscles; *n*, *l*, *k*, sartorius, gracilis; *g*, *h*, *i*, gastrocnemius muscle, cut across.

Page 110. Fig. 51 gives a view of the Outer Side of the Haunch and Left Thigh. The only muscle which has been dissected is the gluteus maximus; all the others are concealed by the femoral aponeurosis, which has been left in its place. The figure contrasts well with that at page 109.

Page 112. Fig. 52.—Superficial Muscles of the Back of the Neck and of the Trunk or Torso; semi-profile view.

a, Trapezius muscle, right side; *l*, deltoid, left side; *h*, a portion of the pectoralis major; *c*, infra-spinatus; *d*, teres minor; *e*, teres major; *b*, latissimus dorsi; *g g*, a portion of the serratus magnus; *f f*, external oblique muscles of the abdomen; *p p*, glutei maximi.

Page 114. Fig. 53.—Deep dissection of the Muscles on the Back of the Neck and Trunk.

The lettering is placed on the right side of the figure, but the fully made out muscles are on the left: *a*, complexus; *b*, splenius; *c*, levator anguli scapulæ; *d*, scaleni; *e m*, rhomboidei; *f*, supra-spinatus; *g*, infra-spinatus; *i h*, teres minor; *k*, teres major; *l*, portion of the triceps extensor cubiti; *o*, portion of the serratus magnus; *q*, intercostal muscles; *n*, serratus posticus inferior; *p*, internal oblique muscle of the abdomen.

Page 117. Fig. 54.—Muscles of the Superior Thoracic or Pectoral Extremity; front view, left arm.

a, The acromion scapulæ; *b*, the deltoid; *c*, tendon of the deltoid where attached to the humerus; *h*, the biceps; *r r*, portions of the triceps; *e e*, fleshy masses connected with the external and internal condyles of the humerus; *i*, supinator longus muscle; *f k*, pronator teres and flexor carpi radialis muscles; *l*, palmaris longus; *S s*, flexor ulnaris; *n*, lower end of the

radius; *o*, fleshy mass of the ball of the thumb; *p*, hypothenar eminence; the muscles seen here are the adductor minimi digiti and palmaris brevis.

Page 121. Fig. 55.—Muscles of the Arm; back view, left arm.

r r, Triceps extensor cubiti; *t*, anconeus process and muscle; *a*, fleshy mass connected with the internal condyle of the humerus; *e*, fleshy mass connected with the external condyle; *z*, extensor communis; *y*, extensors of the thumb; *æ*, posterior annular ligament; 2, thin aponeurosis covering the back of the hand; 1 1, position of the metatarso-phalangeal articulations.

Page 127. Fig. 56.—Superficial Muscles on the Front of the Thigh; left side.

a, Anterior and superior spinous process of the ilium; *b*, tensor fasciæ latæ; *n*, sartorius; *d*, tendon of the rectus cruris; *c*, vastus externus; *e*, small portion of the biceps; *s*, psoas and iliacus; *r*, pectineus; *p*, adductor longus; *o*, adductor magnus.

Page 128. Fig. 57.—Superficial Muscles on the Outer Side of the Left Leg.

c, b, e, Vastus externus and biceps; *d*, gastrocnemius; *e, f, g*, tendo-Achillis; *k, i, h, l*, tibialis anticus, extensor longus pollicis, and extensor longus communis, in succession; behind these are the peroneus longus and brevis; *p, o, n*, external side of the foot; on the dorsum of the foot may be seen the tendons of the extensors, including that of the peroneus tertius.

Page 129. Fig. 58.—Dorsum of the Foot.

e, d, c, Tibialis and extensor muscles, cut across; *a*, peroneal muscles; *g h*, inner side of the foot; *f*, anterior annular ligament; *m*, commencement of the extensor brevis, communis, digitorum pedis; *l k*, outer side of the foot.

Page 130. Fig. 59.—Muscles of the Left Thigh; outer side.

a, External oblique muscle of the abdomen; *b*, sartorius; *c*, tensor fasciæ latæ; *r*, gluteus medius; *q*, gluteus maximus; *d f*, rectus and vastus internus. *e g*, vastus externus; *p*, biceps

flexor cruris ; *o n*, muscles of the inner hamstrings ; *h, i, k, l, m*, muscles of the leg cut across ; they have been already described.

Page 131. Fig. 60.—Muscles of the Left Thigh ; inner side.

a b, Psoas and iliacus ; *d* points to the obturator internus ; *c*, sartorius ; *g l*, portions of the vastus internus ; *f*, rectus femoris ; *h*, gracilis ; *k, l, m*, muscles of the inner hamstrings ; *o*, gastrocnemius.

Page 132. Fig. 61.—Muscles of the Left Leg and Foot ; inner side.

a, Vastus internus ; *b, c, d, e*, muscles of the inner hamstrings ; *f*, gastrocnemius ; *n, g, h, i*, are placed on the smooth surface of the tibia ; *l*, anterior annular ligament of the tarsus ; *m*, abductor pollicis ; the muscle is also called adductor.

Page 161. Fig. 62.—Drawing from the Bust of the Young Memnon in the Egyptian Gallery of the British Museum.

ERRATUM.

Page 119, line 7—*for* “ The fusiform tuberosity, *c c*, is rather to be felt than seen,” *read* “ The tuberosities formed by the pisiform bone and unciform process of the unciform bone are rather to be felt than seen.”

MANUAL OF ARTISTIC ANATOMY.

INTRODUCTION.

THE object of the following work is not merely to teach the artist how to draw or to sculpture the human frame correctly; with this view included, it has a higher aim. The Fine Arts, to which I limit my present view, Sculpture and Painting, most unquestionably are not, as M. Quatremère de Quincy seems to have thought, merely imitative arts; such an expression is inapplicable in every sense to the compositions of Michael Angelo; the Cena of Da Vinci; the Cartoons of Raphael, the Apollo and Venus of antiquity; and generally to the inimitable works of the unknown antique sculptors. The Parthenon was not the product of an imitative mind; no mechanical-minded Saxon could have imagined or designed Egyptian Thebes; an art which may be imitative and strictly so in lands where the Celtic and Saxon elements of mind prevail, was not so in the East, where Hindoo and Copt, and Phœnician and Grecian, Italian and Slavonian minds displayed their original forms of thought. Assured of the soundness of my views, I will yet go further: the rustic scenes of Teniers and Ostade—the landscapes of Cuyp, of Hobbima, and Vanderveld—the interiors of Gerard

Dow—the compositions of Wouvermans—are no more imitations than the grand conceptions of Raphael, and are as much unlike their modern imitators as Astley's Theatre is to the Coliseum. To call these noble productions works of low art is a grotesque error, based on a misconception of what true art is.

A taste for the Fine Arts, and of consequence the condition of these arts themselves, is about as low in Britain as it can well be. Artists are blamed, but the fault lays with the public; this is my conviction, after having given to the matter the most careful consideration. The influence exercised to the detriment of art in Britain by the wealthy vulgar, in or out of power, threatens its further debasement; nationality, with all its hideous and disgusting personalities, and caricatures of men and women, steps in to assist in its destruction; works of ingenuity to please the luxurious; rich furniture and garnishings; foreign productions, the products of other minds and other races of men, are re-cast in England by mechanics clever at adaptation, skilled in artistic tricks to conceal the original idea, and gloss all over with a true British varnish, the product being uniformly a something that never was nor ever will be found in nature; neither in that external world, those material manifestations in which Nature, wrapping up her designs and intentions, offers to human observation, through physical sense, the means of acquiring a knowledge of her existence, of our own being, and of our relations to others; nor in that other deeper and real though unseen world, the human mind, as displayed in the external world, to effect which has ever been the grand and sole aim of the great masters of art.

I foresee the struggle which must arise between the

artists of Britain and a grasping, calculating, commercial race, fettering their genius, and forcing it into unmeaning, official, trading channels. Fancy a young Raphael at the mercy of a Parliamentary Committee, composed of fat cattle admirers, headed by the notable who commenced his career by spouting some commonplace about the Fine Arts; telling the weavers of Rochdale that henceforward "the struggle of nations must be in the workshop!" Pleasant prospect for genius! Such are the views of the illustrious by courtesy, who, unhappily, sway the destiny of art and artists in Britain; tradesmen by their nature, all is trade with them. Royal Academies, Schools of Design, National Galleries, Woods and Forests, sewers and gully-holes, it is all the same to them, from a *temporal accident* in the Church (a bishopric) to a commissionership of sewers and gully-holes! These are the persons with whom the artists of Britain have to deal; they occasionally mislead the public, throwing back art for a century.

Such are the obstacles to the improvements of art in Britain; the climate also offers some, and the character of the dominant race another. The Saxon mind, as regards art, is low and boorish; generally speaking, he does not know what you mean by fine art. With this difficulty also the British artist has to struggle. But the Flemish race abounds in South Britain, and the Celtic are scattered everywhere. Let the artist bear this in remembrance, and address his works to them. But whatever view he may adopt, whatever course he may follow, it ought ever to be his aim that his works be felt by human minds, passions, and affections, and not sink to the level of the mere observance of the animal sense. It is to explain this last point

more fully that I have undertaken this work ; it is to convince, if I can, the artist that the human figure as well as the landscape may be drawn or sculptured after two modes : first, as a mere object of imitation, unworthy of any notice ; secondly, as a figure embodying within it noble suggestions, excitative of deep feeling, of tender emotion, of reverence and awe : in this is the whole distinction between the artist and the mechanic ; the man of the workshop, the artist trained in the Rochdale school, and Raphael. Harmonise your minds with Nature, and learn to read her external manifestations ; to read their meaning. In their grandest forms they address themselves only to few minds distinctly, but to all, or nearly all, more or less. This is the direction you must take if you hope that your works may survive yourselves. The theory I offer to lead the artist to this most desirable path may or may not be new, may or may not be true ; these are questions for posterity to solve.

In a word, the chief aim of this work is to enable the artist, by means of a theory of the Perfect and the Beautiful, to place before the intelligent and sensitive mind Nature in her finest forms, in her highest manifestations of matter. Colour is not the object of the work, it is simply form, the human form—Nature's masterpiece.

Nevertheless, I shall venture a few remarks on colour with reference to the landscape, for the theory on which the landscape ought to be drawn and coloured has also, I fear, been often misunderstood. The landscape is of " Nature ;" it is a manifestation of matter presented by Nature for the contemplation of man, and of all his instincts touching perhaps the deepest. The landscape forms, as it were, the connecting link

between man and his mother earth ; deepest feeling of all, perhaps universal. Civilization cannot utterly extinguish the feeling. As a citizen, an inhabitant of large and populous towns, he does his best to destroy the connecting link between his mind and the landscape of Nature. But all in vain ; in infancy he seeks the green fields, the forest, the river banks ; in the tide of manhood, he rushes from the smoky haunts of man to the mountain-top, and fills his rich apartments with landscape paintings—substitutes for Nature ; and when about to quit for ever its mortal abode, the mind sees in blissful visions green fields and running streams, the representation of that earth from which he sprung, and to which he is about to return.

CHAPTER I.

WHEN Humboldt, in his *Kosmos*, pointed out the difference between the ancient forms of civilization, the Greek and Roman, and the modern or European, and the almost opposing views each took of external nature, he fell, I think, into a double error: for, first, he forgot altogether the genius of the races; he compared the lofty grandeur of the Greek and Roman mind with the modern Saxon chiefly—a mind remarkable for its mechanical, utilitarian tendencies; for its love of detail and machinery; for its dislike to system and to great and original ideas; its contempt for deep thinkers. Secondly, he gave the preference to the latter, because it admired what he called external nature, that is, the landscape, natural or artificial; a correct and deep feeling of the mind, as I have just shown, but apt to degenerate into the mock sentimental and the picturesque, that burlesque upon human sense and feelings. He gives the preference to the modern Saxon mind for those very qualities in which it sinks below most other races; for its littlenesses and its love of detail. The ancient world, he remarks, observed only Man; in the ancient world he was alone the all-observed, as he is indeed the only object on earth worthy of man's deepest consideration. Humboldt complains that the immortal Dictator crossed and recrossed the Alps, scarcely noticing them. Why should he? What sympathies existed between them

and the mind of Cæsar? And so Humboldt commends the Saxon mind, or modern European mental element, as it may be called, for turning aside from the deep study of man—man, the greatest of all Nature's works—to describe, with fastidious and wearisome details, rocks and caves and glaciers, and plants and insects, and rivers and rivulets! This is my objection then to Humboldt's idea: he reduces man to a level with the creeping lichen, the Medusa, the zoophyte; all with him are equally deserving notice and study; he asks us to admire in the Saxon mind its miserable littleness; and he assists in turning aside the mind of man from a profound study of what alone is worthy of his constant thought.

The error committed by modern races and nations, in the estimate they form of their own merits and position in human history, is one we see hourly committed by individuals; they constitute themselves judges of their own value; whereas, it is posterity which can alone decide what rank, individually and nationally, they are to hold in the history of civilized man—posterity, which will weigh in the scales imperial Rome and modern London; Rhodes and Sheffield; Corinth and Birmingham; Byzantium and Liverpool; the National Gallery of brick-built, filthy, common-place London, against the Parthenon! To what a condition has ancient Greece fallen! To what a pitiable condition have the Greek and Roman rituals and rubrics debased the human mind!

Literature, science, and the Fine Arts constitute civilization; and the condition of every nation must be tested by its relation to these. Of the former I mean not to speak here, my sole object being the Fine Arts, and of these but a segment, namely, sculpture

and design, or, more properly speaking, the knowledge to represent correctly the human figure in marble and on canvas. For of all objects on earth, man is most worthy to be made the object of the Fine Arts, of sculpture and of painting. The artist who can sculpture correctly or design on canvas the human figure, will be found equal to any other work of art. The student then should begin with drawing the human figure. Whilst examining a School of Drawing, misnamed a School of Design, in a large midland English town, a hard-headed, mechanical schoolmaster, now elevated to a bishopric, pointed out to me the *method* he had recommended and enforced in the school, which, unhappily for the school, he condescended to patronise and mismanage. "We commence here," he remarked, "with drawing simple figures, such as squares and triangles, circles, octagons, and so forth; and after being well grounded, we proceed to living objects and statues, as represented by drawings!" Admirable observer and reasoner! hard-brained, formulist utilitarian! you belong to the class of schoolmen with whom the law stands for equity, and the diploma for knowledge. Where in the external world do you discover squares and triangles, circles and octagons, cubes and polygons? Are these the forms with which Nature has clothed the organic world? Are these simple forms? Are these abstractions readily comprehensible by the young mind, who never saw them in nature, and knows not what they mean? You speak of a square and an angle as if it were a matter of easy comprehension; and yet to define an angle clearly, as you ought to know, would defy the grand formulist of the day, the great Master of Trinity himself. But in the external world the young mind

sees man, and animals, and plants, and rivers and lakes, and shelving rocks: these are the objects he ought first to be taught to draw, to copy, to imitate; what he sees in nature; what is most familiar to his senses; what he instinctively understands.

The first object, then, in the Fine Arts is to represent man, and through his material form to represent man's feelings, passions, thoughts. When represented in marble or bronze, the art is called high art; and the expression may be extended to a pictorial design, wherein man is represented on canvas or flat surfaces, although it may be questioned whether painting be high art or not. However this may be, one thing is obvious; it is living man and living nature which is to be represented. With the dead we have no sympathies. What seems to me to constitute the grand distinction between the great masters of all antiquity, whether Greek or Roman, is that they designed and sculptured the living figure: modern artists study and draw the dead. Even in the living they (the modern artists) see the dead, that is, the interior; so that their figures look like living corpses. Artists begin now to perceive this error, but they very naturally fall into another. To avoid exposing the interior, they sculpture what merely represents a *statue*—neither living nor life-like. The remark applies to most of the statuary lately exhibited in the Great Exhibition, Hyde Park. And now arises the question—of what use is anatomy to the artist?

Were human ingenuity taxed to discover a method of instruction the best adapted to mislead the artistic student, to misdirect his views, to destroy his taste, to prevent him viewing the external world as Nature intended it should be viewed, the result might probably

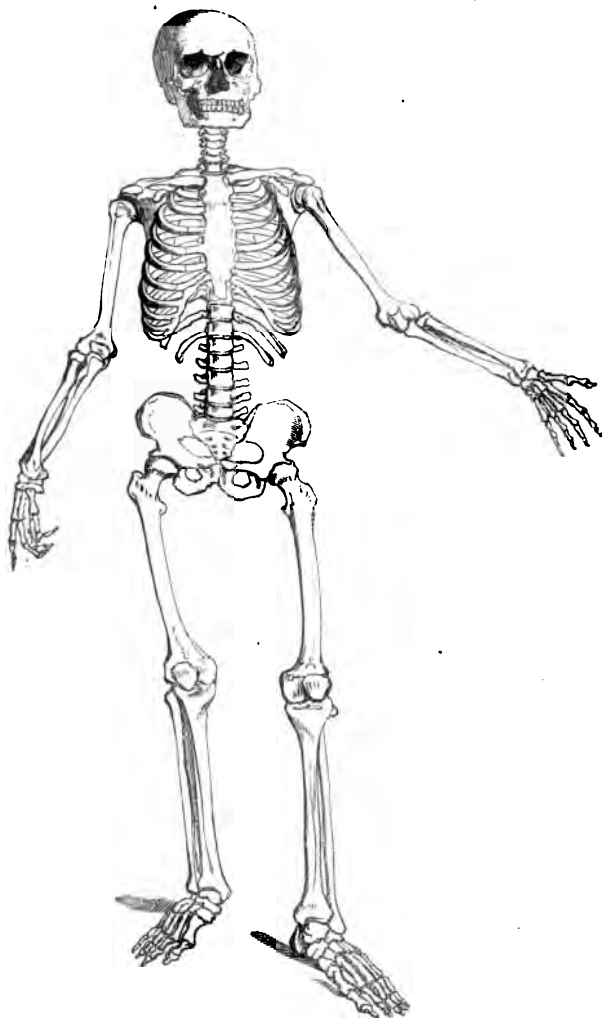
be a recommendation of the present mode or method of instruction. Commence with triangles, squares, and circles; next copy unmeaning outlines from flat surfaces, whose shadows are represented by a substantial, black, colouring matter; next attend a course of lectures on the anatomy of the mangled corse, imperfectly described by a person called—by courtesy, I presume—an Anatomical Demonstrator, a person to whom, in all probability, the term art conveys no tangible idea; and finally and lastly, that the mal-education may be complete, send the unhappy artist into a charnel-house, called a dissecting-room, that his mind may become accustomed, by frequent contemplation, to all that is detestable; familiar with horrors, with the emblems of destruction and death. Thus by degrees, by continually looking at the interior, he at last forgets that there ever was an exterior—he confounds them together; through the exterior he sees only the interior; that interior which Nature intended should never be presented to human sight,—that which, under all circumstances, she has so carefully concealed. This perversion of artistic education has been of slow growth; it were idle to trace it here. Suffice it to say, that in England, utilitarian England, the coping-stone of folly was placed by Sir Charles Bell and Mr. Haydon. Misunderstanding the object of Da Vinci's dissections (whose matchless sketch-book, now in the Queen's private library, I have lately examined, and shall hereafter describe), forgetting that Michael Angelo had himself admitted the error of his early studies, affecting ignorance of the fact that Raphael and the great masters of Greece and Italy were wholly ignorant of anatomy, or nearly so, in the sense they viewed it, they persisted in a theory and mode of study of the dead for

the living, which, had it been followed to the letter, would have destroyed art for a time in Britain. Rubens, who knew nothing of anatomy, designed grandly; his hand was masterly; in composition unsurpassed. Between him and Truth—the eternal, the all-desired—there was no veil; he saw her face to face. Man he drew nobly; nor did he disdain the landscape, which, under his bold pencil and brush, addressed itself to the mind of every observer; it was the landscape of Rubens and of Nature, and not “a sea-beach at Brighton or a cascade in Wales.” He also drew wild beasts: the lion he painted inimitably, giving him a noble and classic look, and bearing the same relation to Mr. Landseer’s lions that the Coliseum does to Wombwell’s Menagerie; but neither Rubens nor Landseer knew anything of the anatomy of the lion, nor the anatomy of any other living animal they painted: they drew the *exterior*; they drew what they saw; they drew *the true*, that is, the exterior *forms*, masking internal *shapes* or configurations, and clothed them with that coloured drapery which Nature designed.

CHAPTER II.

MAN, like all other animals, is composed of an exterior and an interior. The artist will not be the worse for knowing a good deal of the interior, were it only to teach him what to avoid. On his skill in concealing the interior, or rather in representing it as influencing obscurely the exterior, naturally will depend much of the beauty and perfection of his drawings. As the pilot ought to know the outline, the elevations and depressions, the hills and valleys of that submarine land which it is the business of his life to know how to avoid, so perhaps the artistic student should begin with that interior, a display of which it is the business of his artistic life to know how to avoid representing as it really is. Thus learning early the shapes, for they are not forms, which lie beneath the surface, he may in all his future labours avoid the drawing of those shapes as they really exist, and which Nature intended should have no place in the visible, living world. A knowledge of it will contribute to enlarge his views, overcome prejudices, and exalt his position in society. Above all, let him never forget, in drawing the *interior* of man, that he draws shapes not to be reproduced in drawing the living body. Keeping this in view, a brief but accurate study of the interior will be eminently useful to him. I shall now endeavour to show him how this may be done with least injury to his taste.

The human frame is composed of an exterior and an interior. The exterior is formed chiefly of a complex



The Male Skeleton.

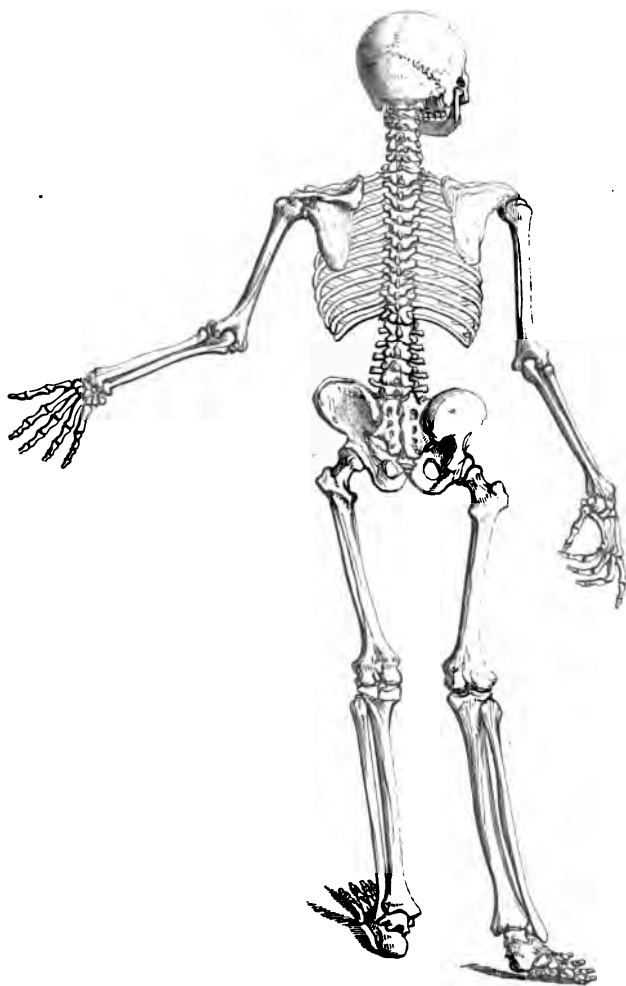
membrane, called the integuments ; we need not advert to this membrane further for the present. The in-



terior is composed of a skeleton or framework, on the proportions of which depend, to a certain degree, the large proportions of the figure. Let the student place the skeleton then before him, and observe that it is composed naturally of two great divisions, the trunk and the limbs. The trunk has been subdivided into a cephalic portion or head, a middle portion, and a pelvic segment. These are the mechanical, unphilosophical, unmeaning divisions of the mere anatomi-

The Male Skeleton—side.

cal demonstrator of human bodies ; a class of men by no means yet extinct in Britain. Yet these sub-



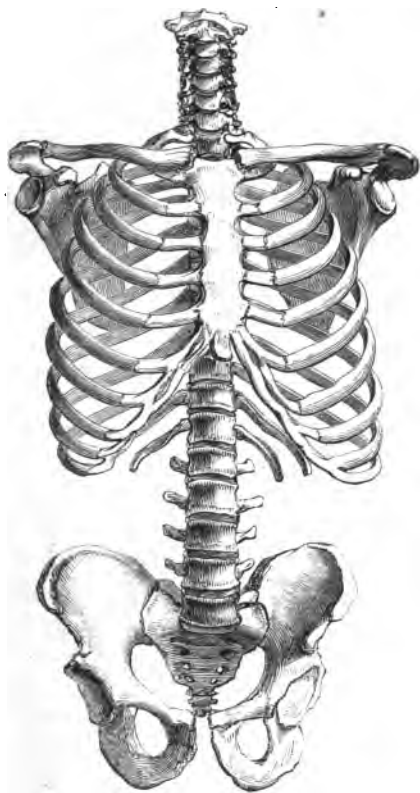
The Male Skeleton—back.

divisions answered well enough the purpose of the artist, and I shall not offer any other. Nothing more



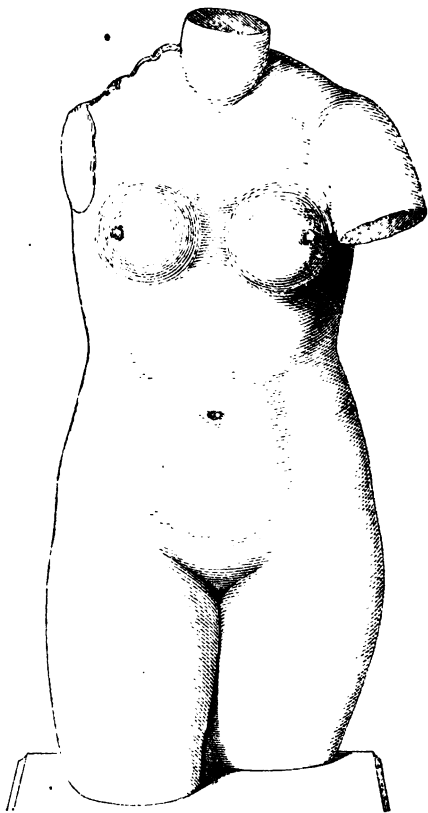
The Female Skeleton.

unphilosophical could well be imagined, but to the artist this does not signify. Whilst drawing and handling these structures, he may as well acquire a knowledge of the names of each leading bone or part. In the skeleton of the head he will find the cranium and the face. On the face is the upper jaw, composed of many bones, and the lower jaw, composed only of one. The



Skeleton of Torso.

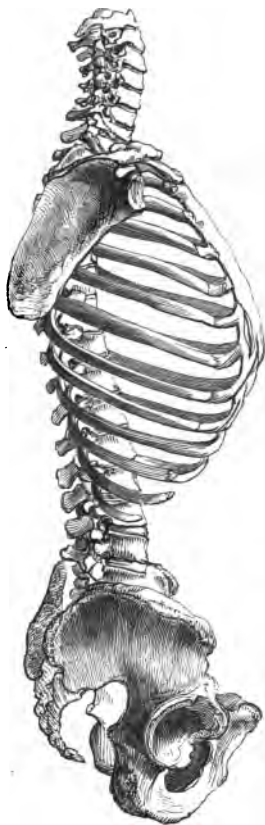
trunk is composed of the neck, comprising seven bones; the back or thorax, an osseous and cartilaginous cage, composed of the twelve dorsal vertebræ, the twenty-four ribs, the same number of costal cartilages, the sternum or breast-bone; the loins, composed of five lumbar vertebræ. In the trunk we further find the



Torso of Venus.

pelvis, or girdle surrounding the lower portion of the trunk, and usually called the pelvic extremity of the trunk, as the head is called its cephalic extremity.

Of these portions of the skeleton careful drawings have been given in this work, but the student at first had better draw from the structures themselves. If the student, at this stage of his studies, will now contrast the skeleton trunk he has drawn with the noble torso of the Venus, the contrast must strike him as wonderful; and finding little or no resemblance between them, he will naturally ask, with amazement, whence came the ideas (they had better be called crotchets) which taught him that they bear any resemblance to each other. West, it has been said, was in the habit of drawing the skeleton figure in outline before clothing it with muscle, integuments, and drapery; so much the worse—he was sure to give them a charnel-house look. The late Sir William Allen told me that, although he had drawn the skeleton of the hand more than two hundred times, he



Skeleton Torso.

was not satisfied with his drawing of *the hand*. How could he be? What resemblance does the skeleton of the hand bear to the living hand? Take even the coarsest outline view you like of the two, and tell me wherein the resemblance lies. Do you find in the skeleton of the hand the taper form, the pulpy extremities of the fingers; the prominences of the skeleton articulations turned into beautiful depressions or dimples, the soft elastic palm, the smooth and glossy elevated dorsum, the fleshy mass of the thumb, the beauteous curve of the antithenor eminence or base of the little finger? It is almost inconceivable that such crotchets should have prevailed to the present day, though backed by the great names of Haydon and Charles Bell. But to return.

The skeleton of the limbs is composed of the following parts: in the upper there are the shoulder-bones, the collar-bones, and the scapula or shoulder-blade; the humerus or arm-bone; the radius and ulna, or bones of the forearm; lastly, the skeleton of the hand, composed also of three parts: the carpal, metacarpal, and digital. By drawing all these bones, first separately, and next conjoined by their natural ligaments, the student will learn some points of the figure which may afterwards be of use to him. The long bones, he will observe, are not straight, but twisted on themselves; the short bones square and strong; the bones of the fingers curved and somewhat flattened. But it is in the chapter on the ligaments and joints connecting these bones together, that I shall more especially point out the extent to which the drawing of this portion of the skeleton may be of use to the artist. In this section and in the subsequent one, I mean to confine

my remarks strictly to the bones composing the skeleton.*

In the lower or pelvic or abdominal extremity, as it is sometimes called, we find the following bones: first, the thigh-bone; secondly, the bones of the leg, tibia, fibula; thirdly, the bones of the foot, the tarsal bones, the metatarsal, the digital.

All these bones are articulated in one way or another; they are connected together by ligaments, a knowledge of which is of importance to the student. What I have further to say respecting the human skeleton, it is my intention to conclude in Chapter III.

* See Figures, pp. 13, 14.

CHAPTER III.

HISTORY OF THE SKELETON, CONTINUED.

FROM the instant, as it were, the artist or student commences drawing the skeleton, whether as detached and separated into its osseous elements, or united into a whole by its natural ligaments, or artificially articulated by wires, he ought to place by its side, for constant comparison, the plaster cast of the male and female figure as it exists in life; thus will he learn, so as never to forget, how widely different the exterior is from the interior; how distinct in form; how unlike in character. The prominences he finds in the skeleton become, in the handsome living form, beautiful depressions, full of grace and interest. Nothing can be imagined more unlike the well-formed living thigh than the bone called the thigh-bone; nothing so unlike the back of the Venus than the frightful chain of osseous nodosities supporting it; and yet artists have been told* that to draw the former well, you must be a perfect anatomist, that is, be thoroughly conversant with the anatomy of the vertebral column. Great names were never connected with a greater delusion: all this might have been avoided, had they studied carefully the sketch-book of the immortal Leonardo, already referred to. Therein they would have seen how nice were the discriminating powers of the great master, and how accurately he distinguished

* Bell and Haydon.

a living form from a mere statue, however beautiful ; and a living form from the dissected corse, the emblem, wherever seen, of dissolution, of death. Yet there are many points in the anatomy of the osseous system it were well to know. This knowledge he will easiest



Vertebral Column.
Profile.



Vertebral Column.
Back View.



Vertebral Column.
Front View.

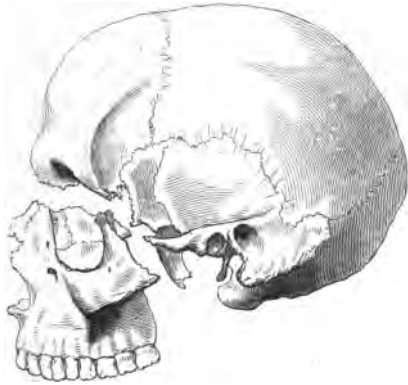
acquire whilst drawing the skeleton and its separate portions, though he is drawing shapes which it were, in some respects, well for him neither to know nor to have seen, but for this knowledge he must make a sacrifice. The interior he must contemplate, that he may know it—first, because it influences the exterior, and secondly, to avoid portraying it whilst drawing the living figure. Those projecting points of bones, the malleoli, as they are called, which look so hideous in the skeleton, and in the living foot, when that foot displays the *interior*, as it not unfrequently does, become, when clothed with a fine investing integument, as in the foot of the Venus, soft, undulating prominences of most exquisite beauty—I speak of the ankles. To see Nature as she is, belongs exclusively to genius; a deficiency in this must be made up by scientific study. Leonardo possessed both; the modern artist had better trust to *study*. The skeleton is the framework of the



Hyoid Bones. Articulation of the
Lower Jaw. Ligaments.

figure, and determines some of its larger proportions; it determines the attitude, and its shapes vary somewhat in the different races of men. There are osseous and hard structures in man, in addition to the skeleton, which yet do not belong to it; the most remarkable of these are—first, the patellæ; and secondly, the small bones situ-

ated beneath the extremity of the first metatarsal bones and first metacarpal, these are called osteoids ; they belong to the system of the tendons of muscles. A small system of bones exists in the neck of man, the hyoid or lingual bones ;* these are what physiologists term rudimentary structures, their more perfect development occurring not in man, but in fishes and reptiles. Lastly, the teeth, which *are not* true bones, but hard complex structures in connection with the alimentary system of organs. —Like all those parts which nature intended should permanently or



European Cranium apart from the Face.

temporarily form a portion of the exterior, they are decorated with forms peculiarly human ; an enamel of exquisite polish and whiteness invests the corona or exposed portion of each, and thus, when fine, the teeth admit of the fullest display.

In glancing over the arrangement of the bones composing the skeleton, the artist will observe that the broad bones of the head protect the brain ; the osseous cage-work of the chest affords some protection to the heart and lungs, and a portion of the abdominal organs ; the pelvis affords some slight protection to others.

* See Figure, p. 24.

Many puerilities have been written by grave men, in the works called "Animal Mechanics," a perusal of which will only mislead the mind of the artist. They are based on a false view of nature, devoid of philosophy and of truth. Living bodies are not steam-engines nor spinning-jennies; nor was the cranium arched merely to enable man to carry weights on his head.

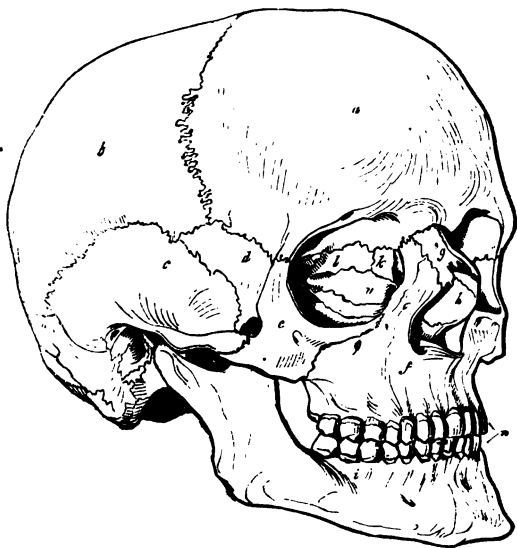
Let the student look at the fresh bones, and he will observe that, at certain points, their extremities or margins especially are incrustated with cartilage; these protect the osseous structure and assist in forming the joints. Ligaments connect the bones together. The bones themselves are of a great variety of forms, the reason of which, not being mechanical, is wholly unknown to physiologists. They present on their surfaces, furrows, grooves, fissures, etc.; they are perforated with holes or foramina, and many show prominences, protuberances, tuberosities, etc.

The skeleton, if divided *mesially* and *vertically*, will be found to be composed of two strictly corresponding symmetrical halves. The single bones of the trunk are divided mesially; the bones of the extremities thus correspond with each other, yet they are seldom perfectly symmetrical, this character seemingly belonging more to the skeleton of the lower animals than to man. The right side generally preponderates, or is larger, stronger, heavier, and longer; yet absolute symmetry must be the law, and it exists in some exquisitely formed individuals.

A reference to the woodcuts will enable the student to name each bone, and ascertain its position. Here I shall merely enumerate them, giving their usual names.

In the cranium, there are the frontal, *a*, parietal, *b*, temporal, *c*, occipital, *m*, ethmoidal, *n*, and sphenoidal, *d*,

bones, eight in all. The student may sketch them all, as being the readiest way, and the most appropriate for recollecting their nature and position. Their forms generally, with a few exceptions, have nothing whatever to do with art. The cavity they form contains the brain. The interior of the osseous cavity looks as if it were



European Skull, including Cranium and Face.

moulded over the outer surface of the brain, but the exterior differs widely. The adaptation of the cranium to the brain has given rise to some false systems of mental philosophy, to which I may hereafter advert.

The artistic student may next turn his attention to the bones of the face, which he should also sketch, placing them before him, and, drawing them individually and then conjoinedly, he thus enumerates them. In the upper jaw he will find—

The nasal bones, <i>g</i>	2
The malar bones, <i>e</i>	2
The superior maxillary bones, <i>f</i>	2
The vomer bone	1
The turbinated bones	2
The lachrymal bones	2

In the lower jaw—

The inferior maxillary bone	1
-----------------------------------	---

Sixteen teeth in the upper, and the same number in the lower jaw, seem to complete the structure. The teeth are *quasi* external organs intended to be seen. Deeply wedged within the rocky part of the temporal bone on either side, the anatomist will show the artistic student, curious in such matters, four small bones, the ossicula auditus; they belong to the organ of sense in which they

are lodged, and probably neither belong naturally to the skeleton, nor have any physiological or philosophical relations with it.



Occipital Bone.



Art. Atloid Axoid.

Contemplating the osseous head when drawn, the student must be at once struck with the dissemblance of the skeleton of the face to the living finely-formed face. How differently formed are the cheeks, and chin, and brow to the osseous structures. Nor does this difference depend, as we shall afterwards find, although this error has also been, and

still is, extensively inculcated, on the presence of the muscular system ; on the contrary, it is wholly due to the presence of that exterior whose relation to the *external* world is at once obvious. To the *interior* of the body it bears no other relation than that of concealment.

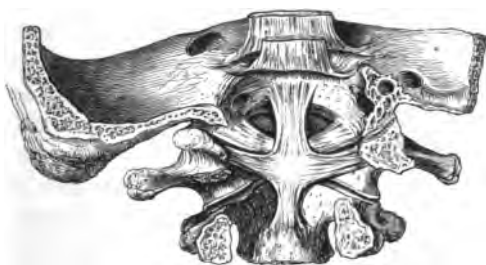
CHAPTER IV.

AN extremely useful but somewhat dry study for the artist, is the anatomy of the joints. The movements of the body depend to a certain extent on these organs, and are regulated by them. To understand them correctly, the student must first examine for himself the extremities of the long bones, and the margins or edges of the broad bones. Having done this, let him draw the articulation with its ligaments, from nature. The preparations required for this are not usually kept in anatomical schools, so that a fresh dissection of the structures may often be required, or joints so prepared may be kept in spirits; or joints which have been dried may, by immersion for some hours in water, recover their flexibility. But the artist must not draw from the dried preparations kept in anatomical schools.

The various bones of the skeleton are united to each other by ligaments. Cartilages, or fibro-cartilages, also contribute to form joints, which are either movable or immovable. When movable, as in the long bones, in addition to ligaments, other structures adapting them for motion are superadded, an anti-friction apparatus in fact, composed of cartilages of incrustation, synovial membranes, interarticular cartilages, etc. It is sufficient for the artist to be aware of the existence of such structures. Let him proceed to draw the articulations individually, following any order he may think fit. The woodcuts show them all, but he ought to draw them also from nature. The liga-

ments are not elastic substances, but the fibro-cartilages are.

In the head the articulations are immovable, with the exception of the lower jaw. The condyle of the lower jaw is received into a hollow of the temporal bone; this cavity is called the glenoid. In this joint we have the external lateral ligament. This joint,* then, has but one ligament, and in this it is remarkable. In its interior there is an interarticular cartilage, and a ligament, called stylo-maxillary, connects the jaw-bone to the styloid process of the temporal bone. The lower jaw then moves upwards and downwards, from side to side, and slides forwards and backwards. The upper jaw never moves by itself but under peculiar circumstances. The entire head may move backwards, and so recede from the lower jaw, the teeth being then the fixed point.



Art. Occipito-atloid.

Art. Occipito-axoid.

*Articulations of the head with the first vertebra (art. occipito-atlantoidica).—*In this joint we have, first, the condyles of the occipital bone; second, the facettes of the atlas—these are incrustated with cartilage; third, strong, short ligaments connect the bones

* See Figure, p. 24.

together. The woodcut points out all these structures. The head then moves only backwards and forwards on the atlas; its rotatory motion depends on other articulations.

Articulations of the two first vertebræ with each other (art. atloldo-axodien). — There is, first, two smooth articular facettes on the inferior surface of the atlas — these rest on slightly convex, corresponding surfaces of the vertebra dentata, that is, the second cervical; second, there is a small oval facette on the inner surface of the arch of the atlas; third, the tooth-like process of the second vertebra passes up within the ring of the atlas, and on this process the atlas and entire head play as on a pivot: the mechanism is wonderful and admirable. A transverse ligament, fourth, secures the process in its place, and on the strength of this ligament life depends. Two very powerful ligaments connect the processus dentatus to the occipital bone. Study these joints, and the movements they admit; note well the universal motion of the head, as far, at least, as a semicircle goes, the vast strength of the ligaments, and the check Nature has put to too violent or too extensive rotation of the head.

Of the articulations of the twenty-two next vertebræ little requires to be said, for drawings compared with nature will be found to explain all that is requisite. The body of the third cervical vertebra is united to the second by a strong fibro-cartilage, and to the body of the fourth vertebra by a similar structure. Fibro-cartilages of the same nature unite the bodies of the vertebræ through all the regions of the column, until we come to the fifth lumbar, whose body is united by fibro-cartilage also to the first sacral vertebra. The articular processes, four for each ver-

tebra, assist the mobility and strength of all these joints; an interspinous ligament, and a supra-spinous ligament of a peculiar character, being elastic, connect the spinous processes of all these vertebræ to each other; the laminæ of the vertebræ are united by an elastic yellow ligament of great strength. The woodcuts will furnish further details of all these structures. To understand the vertebral column, the student ought not to draw or study it from a dried preparation, but immersing it in water for twenty-four hours, examine it carefully. He will then discover a mechanism which is perhaps without a parallel, combining vast strength and flexibility; protecting in a most efficient way the most delicate organ in the body, the spinal marrow, roots of the nerves, etc. The column, in truth, is the centre of all the great movements of the body, and its name characterises that vast class of organic beings of which man forms a part—the vertebrated animals of naturalists.



Vertebral Column.

The five sacral vertebræ are, in the grown person, united by bone, so also are the coccygeal vertebræ. But the first coccygeal in woman is generally united by a fibro-cartilage and ligaments, thus forming in her a movable joint. A small, fan-shaped muscle, the ischio-coccygeus, which I shall afterwards describe, strengthens by its presence the extremity of the spine.

SHOULDER-JOINT.

Scapulo-humeral Articulation. Articulations of the Collar-bones to the Sternum and to the Scapula.—These articulations may as well be described together. Compare the woodcuts with nature, and draw from either or both. The articulation of the collar-bones with the sternum, or breast-bone, is strengthened by a series of ligaments not quite surrounding the joint; it admits of extensive motions. The scapulo-clavicular joint is, on the contrary, comparatively close, and nearly immovable. Ligaments above and below strengthen this joint. The scapula is further connected to the collar-bone by the conoid and trapezoid ligaments, and by the sub-clavicular aponeurosis, the positions and connections of which the woodcuts will explain. The scapulo-humeral joint is the one deserving most the study of the artist. By the nature of its osseous articulating surfaces, it admits of extensive motions. A capsular ligament of no great strength surrounds and shuts in the joint, the real security of which depends, after all, on the surrounding tendons and muscles. The humerus, and with it the arm, may be made to move in all directions, but its elevation is checked by the presence of the acromial process. The varied movements of the arm and shoulder

will be best studied after describing the muscular system, by means of which these movements are performed; but it will always be advantageous for the student to sketch the joint in all its *possible* attitudes, whilst studying the articulations I now describe.

ELBOW-JOINT.

Examine the osseous structure in the separate bones, and adapt them to each other; next draw the ligaments from the freshly-prepared joint, or, in its absence, from one prepared as above described. In this joint we find the following ligaments: first, the internal lateral ligament; second, the external lateral ligament; third, the anterior; fourth, the posterior ligament. Thus the forearm can perform but two movements on the arm, namely, forwards and backwards; both limited by the osseous structures, as may readily be demonstrated by the skeleton. The humerus following one axis, and the bones of the forearm another, it follows that, in flexion, the hand and the forearm approach the chest, and this bending of the arms towards the chest gives to the motion a peculiar grace. Vulgar, coarse-minded people often sit with their elbows on the table, and the forearm forcibly placed in the axis of the arm; this arises, not from their joints being differently made from those of others, but from the vulgarity of their minds prompting them to assume vulgar and low attitudes. It is the mind, not the body—the brain which is at fault, and not the joints; for the joints obey the tendons and muscles, and these again are regulated by the nerves and brain. To learn to avoid all ungraceful movements and attitudes is the trick of the actor; when natural feeling is wanting, he acquires a theatrical

strut and swagger, that is to say, a theatrical manner. Most actors fall into this artistic manner, for an obvious reason. The very figure of such actors, though used by most artists, is highly objectionable. The student ought never to draw from such figures, nor study the attitudes of second-rate actors. To assist in forming his taste, I venture to recommend to him to improve his knowledge of what his own joints can do and what they cannot do. First comes truth, and next taste. Visit the Elgin Gallery in the Museum, look over the hundreds of figures which, of all sizes, decorated the frieze of the Parthenon, and you will not find amongst them a single theatrical or vulgar attitude. All is elegance and ease; all beauty and truth.



Drawing of a section of the Frieze of the Parthenon.
Battle of the Centaurs and Lapithæ.

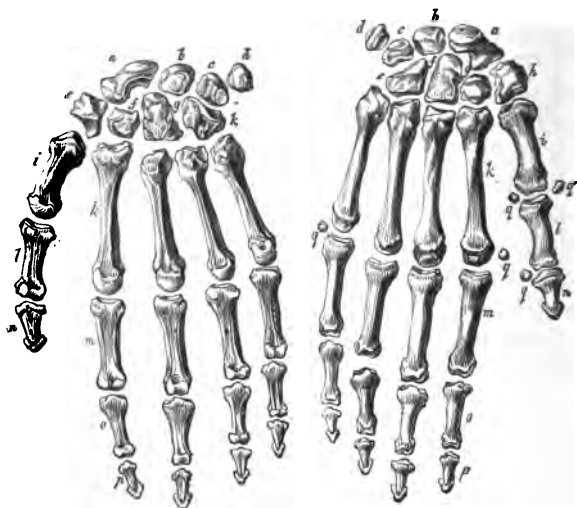
The artist or artists, it is true, who carved these immortal figures knew nothing of the dead anatomy, be

it so; but they had deeply studied and knew well the living anatomy, which you have but few opportunities of studying, and even if you had, it were well to know the *reasons* (and they are anatomical and physical, of course) why such and such a joint cannot be made to assume an impossible attitude. The ancients knew as well as we do *the fact* that water can only rise to a certain height in a pump-well; but they knew not *the cause*. Herein then the modern world has the advantage; it has added science to matters of fact, changing empiricism into rational theory. It is by theory alone that the human mind can hope to make progress; by science alone that we, the young world, as we call ourselves, though in reality the old, can hope to surpass the comparatively young world of Homer and Phidias, of Amenoph and Brama, of Euclid and Euripides. Their powers of observation were at the least equal to ours; their love of truth, of the beautiful and the perfect, was equalled only by their capacity for perceiving these grand qualities in nature; their genius, their instinctive minds were no doubt greater than ours; their reasoning powers not inferior. But science was then in its infancy—science which tends to and hopes to explain all things, from the origin of life in this world to the formation of man. To explain what the ancients understood empirically, in other words, to apply science or theory to these, the divine remains of antiquity, to reconcile facts with theory, or theory with facts, is the main object of this work.

The forearm, besides its motions on the arm of inflexion and extension, rotates upon its axis, and in doing so, carries the hand with it. This is effected by means of the radius bone; its articulation, then, with the hu-

merus and ulna above, and with the ulna and carpal bones below, merit peculiarly the attention of the artist. This is not the place to describe these structures anatomically, but merely to point them out to the artistic student; adapt the bones to each other, then study and draw them in their natural position. The ligament, *c*, enables the radius to rotate freely around the ulna, carrying the hand with it. At *b* the radius rotates around the lower end of the ulna, carrying the hand with it; the ulna remaining all the time immovable. The ligaments securing these important joints and facilitating these graceful movements, are—the annular ligament; the interosseal, which is not a ligament, properly so called; the triangular fibro-cartilage, connecting the lower end of the radius to the ulna.

I come now to the wrist-joint. The wrist-joint is



Skeleton of the Hand, dorsal.

Skeleton of the Hand, palmar.

formed mainly by the radius and the carpal bones, called scaphoid semilunar and os magnum (see wood-cut); the pyramidal bone is indirectly articulated with the ulna, there being an inarticular fibro-cartilage interposed between them. There are ligaments placed on all sides of the wrist-joint; laterally, *fg*, anteriorly, *h*, posteriorly, *i*. The laxity of these ligaments permits of extensive motions in some persons at the wrist-joint, simulating a rotatory motion; but the fine movements of supination and pronation of the hands are performed solely by means of the radius, and by the rotation of that bone on its axis, around the small head of the humerus at the elbow-joint.

The proportions of the human hand depend to a certain extent on its osseous framework, but not its beauty. The bones of the carpus, eight in number, are united to each other by strong, short ligaments, admitting of but little motion, if any, between their numerous joints. These carpal, metacarpal, as well as the digital ligaments are carefully represented in the accompanying woodcuts. The metacarpal bones have also their ligaments, which will be best understood by a reference to the figures. The digital phalanges are in like manner connected to each other, and to the metacarpal bones by lateral and anterior ligaments. It is right that the artist understands these matters; but it is right also that he be informed that neither the beauty nor the perfection of the human hand, nor that which gives to the hand its peculiarly human character, reside in any of the structures or shapes (I cannot call them forms) just described.

HIP-JOINT.

Coxo-femoral.—This is a perfect ball-and-socket

joint, and the only one which exists in the body. The head of the femur is received into the cotyloid cavity of the nameless or haunch-bone; the surfaces are incrustated with cartilage. A powerful capsular ligament surrounds the joint connecting the bones together, the round ligament (an interarticular ligament), and wanting in some animals of great strength, as the elephant, is yet present in man. The joint is further secured by the pressure of the external atmosphere, and by the pressure of some of the most powerful muscles and tendons of the body.

The movements of the femur or the trunk are limited—first, outwardly, or in abduction, by the upper margin of the acetabulum; secondly, backwards, or in extension, by the muscles and capsular ligament; there is, in fact, no such motion as extension of the femur backwards. Scarpa was the first to point this out. But I need not dwell on movements which must be carefully studied, when I come to describe the muscles.

KNEE-JOINT.

Femoro-tibial Articulation.—Examine the osseous surfaces forming this joint; they are essentially the condyles of the femur, and the corresponding surfaces of the tibia. The tibia, in standing, sustains the entire weight of the body, no part of the weight being transmitted through the fibula. The rotula is a sesamoid bone or osteoid, not necessarily existing in all animals, but forming in man a part of the joint. It belongs to the system of the fibro-cartilages, developed in tendons, ultimately assuming an osseous character. Besides the usual apparatus of a highly movable joint, we find in the knee-joint two semilunar inter-

articular cartilages; these contribute greatly to the security of the joint.

The ligaments are—first, the internal; second, the external lateral ligament; third, the crucial ligaments.

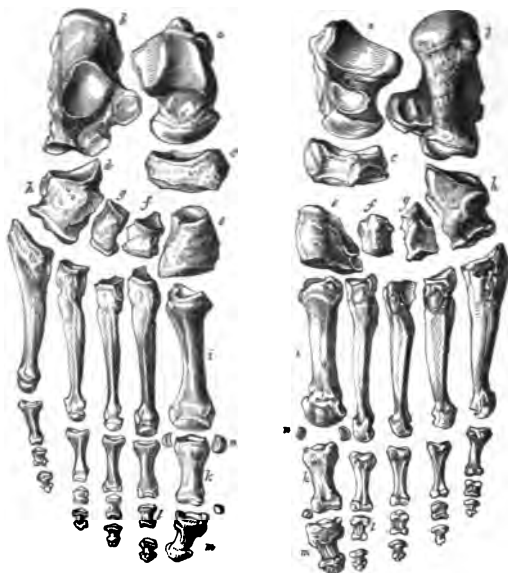
The mechanism of the knee-joint cannot be well understood until I have described the muscles and aponeuroses, especially the extensor tendons of the legs and their rotular appendage. The joint itself is a hinge-joint, admitting of rather extensive motions in flexion and extension. It admits of a slight rotatory motion during strong flexion, but none during extension. The limbs are broken levers, which, by the action of the muscles, become solid or fixed for action and for supporting the body. In extension it is the strong extensor muscles of the thigh which, assisted by the patella, convert the broken lever into a fixed one. Hence, when the patella snaps, breaking transversely, the limb becomes useless for a time to the person; it remains a broken lever always until the patella reunites.

Fibular Articulations.—The upper and lower extremities of the fibula are connected to the tibia by ligaments, rendering them nearly immovable joints. The accompanying woodcuts, with their explanations, sufficiently point out their nature and form.

ANKLE-JOINT.

This is formed above by the tibia and fibula; below by the astragalus. It is a perfect hinge-joint and nothing else, but the laxity of its ligament permits of motion, resembling, to a certain extent, a semi-rotation. These ligaments are the internal and external lateral ligaments of the joint. The strength of the joint

depends almost wholly on the surrounding muscles and tendons. The integrity of the fibula is essential to its functions in man.



Skeleton of the Feet.

Tarsal Articulations.—Numerous ligaments, called dorsal, plantar, and interosseal, tie the bones of the tarsus to each other and to the metatarsus. They are of great strength, admitting, from their shortness, of no perceptible motion between those bones. Strength is the object required here, and yet we shall find that the calceo-scapoid ligament has been substituted for bone in the place where the greatest strength is required. The woodcut explains the position and form of all these ligaments, and the accompanying letters give their names. The inferior calceo-

cuboid ligament is the next to the calceo-scaphoid, the most remarkable in the foot; it is of great strength, binding the bones of the foot together in the most solid manner. The metatarsal bones are united to each other by an anterior inferior ligament, as well as by others seen in the woodcut. The toes have also their ligaments, resembling those of the fingers, that is, lateral and anterior ligaments of a proportionate strength. They admit of flexion and extension. The joint forming the ball of the great toe merits a peculiar study: this part always forms a remarkable feature in the form of the human foot. On this side the foot lies the strength, as it were, of the whole, not so much in the great toe itself as in the metatarsal bone supporting it; in its ligaments, muscles, tendons, and sesamoid bones. But a consideration of these joints I shall reserve for a short chapter on the movements of the head, torso, and limbs, in as far as these movements depend mainly on the shape of the bones composing the skeleton, and on the ligaments, whether really ligamentous or fibro-cartilaginous, or composed of that peculiar *yellow tissue* which nature sometimes uses as a substitute, not merely for ligament and fibro-cartilage, but for the muscles themselves.

CHAPTER V.

ANIMAL MECHANICS—HUMAN PROPORTIONS—CONTOUR
OF THE BODY—COMPONENT, DEEP STRUCTURES
PRODUCING THAT CONTOUR.

To mathematicians and others of a mechanical turn of mind belongs the consideration of the human body, as composed of levers and pulleys, cogs and wheels. Men, who ought to have been watchmakers, have become surgeons and anatomists, and have written works on the philosophy of the human hand, and on animal mechanics, and on the human machine, without a spark of philosophy, genius, or truth. But my remarks on this matter will be very brief. I shall employ the section more as an introduction to what is to follow than to mere animal mechanics; a dry and uninteresting subject, worthy of Borelli, but not of Raphael, or those who purpose following him.

Station has been defined the vertical attitude of man on a solid surface. The *base of sustentation* of man is that space on which a line falls perpendicularly through the centre of gravity. That the body may remain in repose, all its parts must be *in equilibrio* around the centre of gravity. The position then of the centre of gravity must be regulated by the form of the body and its disposition. In man the centre of gravity is situated between the pubis and the sacrum. The body falls when the line of gravity descends beyond the base of sustentation, unless instantly restored by muscular efforts.

By studying the nature of the base of sustentation, its varying breadth and general extent, the artist will easily be led to understand the mechanism of motion and repose. Standing erect on one foot, for example, becomes a painful effort, if continued for any great length of time; and the standing *erect on two feet* becomes also painful, if continued. Hence the necessity we feel of assuming the position of *standing at ease*, as it is termed by military men; a position which may be maintained for almost any length of time without fatigue. The mechanism of this attitude and the force required to maintain it, were totally misunderstood by Sir Charles Bell and Dr. Arnott. In standing erect, whether on one foot or both, the first object is to convert the limb into a fixed lever, instead of a broken one; or in other words, the knee-joint must become fixed and unyielding. When we stand upright on both feet, the knee-joints are fixed and secured by the extensor muscles, acting on the rotula, and this again on the ligament of the rotula. But this requires a strong muscular effort, and therefore it is that we cannot remain long in that position. We must either sit down, or seek another and an easier position; now this is obtained by standing on one foot, and placing the other somewhat forward, and in front, so as to act nearly in balancing the body, but not for the purpose of supporting it. By doing so, the knee of the straight limb becomes fixed, and the limb an unbroken lever, almost without any muscular effort, and thus the position may be maintained for hours without fatigue. This result is obtained by simply altering the direction of the line of gravity, throwing it in front of the knee-joint, and not through the axis of the tibia. The task of maintaining the limb fixed is

thus removed from the extensor muscles, and thrown on the posterior ligament of Winslow, and all fatigue in consequence avoided. Sir Charles Bell fancied that the result was obtained by a bracing of the femoral aponeurosis and of the patella, by means of the tensor muscle; this erroneous view is refuted at once by the simple fact, that when we thus stand at ease, the patella of the sustaining limb is perfectly movable.

The movements of the body are effected by the superficial and deep muscles, chiefly covering and attached to the skeleton. They have, as appendages, tendons, aponeuroses, cellular sheaths; all these, in so far as they are required to be known to the artist, I shall describe in the two subsequent chapters. What remains for me in this is to describe, briefly, the contour of the body, to state on what it depends; and, lastly, the general proportions of man and woman. These we shall find dependent, to a certain extent, on structures already described, namely, the skeleton and the articulations. But to understand the contour of the body in all its perfection, as well as its varieties, that is, deformities—to explain why that contour is at times most beautiful, at other times hideous—how it varies from infancy to second childhood, the term of all mortal life—how disease, and age, and poverty break up the finest forms—in a word, how the laws of development and of the circumambient atmosphere and external world act and react upon it, can only be *explained* by a knowledge of the structures composing it.

I prefer, with most artists, the measurements of the human figure proposed by M. Cousin; those of Albert Durer are complex, pedantic, and difficult to comprehend. Gerard Andral was a good mea-

surer of antique statues, but nothing more; nevertheless his work is valuable. In regard, however, to such measurements, I have one remark to make; it is this—the height of the Medicean Venus cannot be measured from the statue itself, in consequence of its stooping position; some state it at five feet two inches, others at five feet; Mr. John Bell affirms it to be four feet ten inches. I can only account for such extraordinary differences by supposing that the statue really never was measured in the only possible way to attain accuracy, namely, by placing side by side a living figure of the same stature in a semi-bended position, precisely as the statue, and having ascertained that in this attitude, all points corresponding, the living figure and the statue have a strictly corresponding attitude, then measure the living figure in a perfectly upright position. In this way, and in this way alone, can the certain stature of the Medicean Venus be determined; but I am not aware that this method has ever been had recourse to.

We remain ignorant, then, of the absolute height of the most celebrated female figure of all ages; but from others whose position admits of actual measurement, the following proportions have been determined as being the best to be observed under all circumstances:—

The height of the body is eight heads.

From the summit of the head to the lower

part of the chin 1 head.

From the lower edge of the chin to the

nipple 1 „

From the nipple to the navel..... 1 „

From the navel to the genitals 1 „

From the genitals to the middle of the thigh 1 „

From the middle of the thigh to the knee...	1 head.
From the knee to below the calf	1 „
From below the calf to the heel.....	1 „

The arms being fully extended, the breadth should measure as nearly as may be the length, that is, eight heads. The measurements of the torso were given apart by Cousin; thus:

The torso, from the shoulder to the genitals.	3 heads
From the shoulders to the nipple	1 head.
From the nipple to the navel	1 „
From the navel to the genitals	1 „

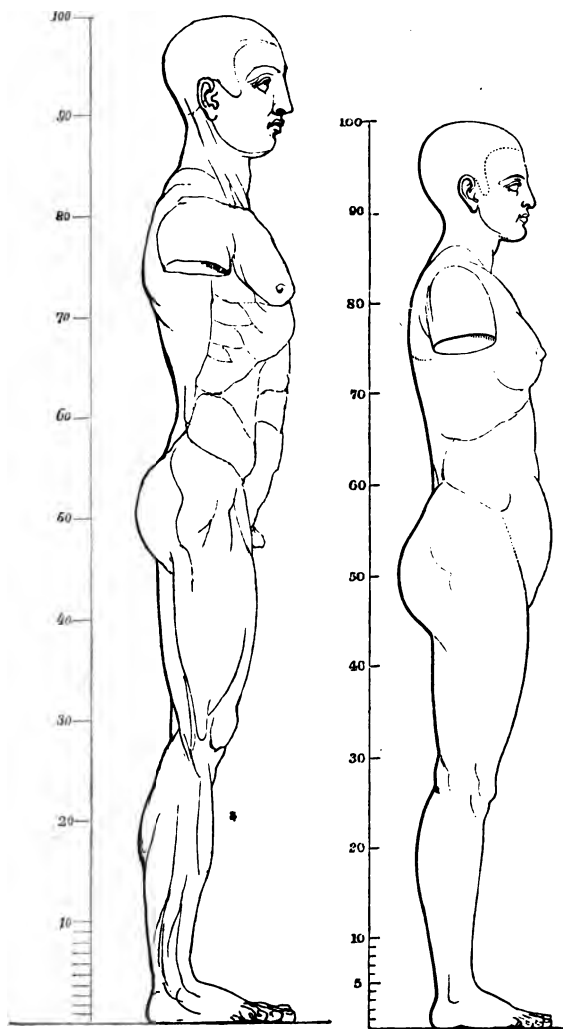
Behind, the torso gives the following measurements:—

From the shoulders to the inferior angle of the scapula	1 head.
From this angle to the haunches	1 „
From the haunches to the inferior surface of the hips	1 „

Cousin divides the head into four equal parts—

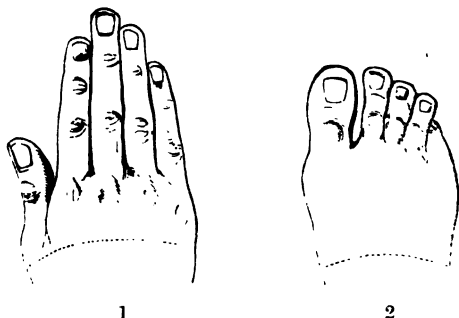
From the vertex to the commencement of the hairy scalp.....	1 part.
To the root of the nose	1 „
The nose	1 „
From the lower edge of the nose to that of the chin.....	1 „
The neck	5 parts.
From the shoulder to the wrist.....	2 heads
The hand	1 „
From the genitals to the sole of the foot....	4 „

The hands are thus as long as the face; they measure three times the length of the nose; one part is allowed for the wrist. The woodcut in page 50 will best explain how the fingers should terminate,



Figures showing the proportions of Man and Woman.

with a reference to their respective lengths. Any wide deviations from these proportions of fingers cause them to resemble more or less the fingers and toes of the lower animals.



1. The relative length of the Fingers.

2. Antique Foot.

In this system the terms *nose* and *part* are of equal value.

The length of the foot in profile is four parts, but Cousin has further subdivided the foot into three parts; these have a reference merely to itself. From the instep to the ball of the great toe, or joint, he reckoned one part two-thirds; but reckoning the foot as equal to four noses, or parts, the little toe commencing at the last third of the third part, and does not extend beyond the half of the second phalanx of the great toe. The length of the nail measures the progressive increase of the succeeding toes.

Cousin's method of measuring the breadth and thickness of the body was as follows. The line passing before the eyes to the extent of the breadth of the face, that point he divides into five equal parts; the eyes occupy the second and the fourth, the nose the third.

The eye itself he further subdivides into three parts, the central one of which comprises the transparent cornea; the aperture of the eyelids is equal to one of these parts.

The breadth of the nose at the base of the nostrils, equals the length of the eye, but viewed in profile, it is narrower by a fourth; in length the nostrils equal the half of the breadth of the nose.

The mouth should measure the length of the eye and one-half. By mouth, I here mean the opening of the mouth, and not the buccal cavity within. The height or depth of the upper lip equals the eighth of its length; that of the lower a fifth.

The external ear is as beautiful in the antique statue as every other part of the body. Its beauty depends on its form, and this is in part based on its proportions, extrinsic and intrinsic: that is, first, in relation to the rest of the head; second, in relation to its own parts. Its position and length are measured and determined by a line extending backwards from the external angle of the eye, and another from the base of the nostrils; between these two lines is placed the external ear. It must not be placed too far back in either sex, as happens in the Jew, but it is further forward in woman than in man. When I examined the somewhat celebrated statue of Thorwaldsen, now at Trinity College, Cambridge, a statue of no great merit, notwithstanding the celebrity of the sculptor, I told my esteemed friends* who showed me the statue, that if the sculptor had in this instance followed Nature, or, using a more correct phrase, sculptured a fac-simile likeness of Byron in all respects, then the great poet

* Sedgwick, Clarke.

and satirist must have had a woman's head; for, making allowance for its greater size and elevation, the cranium resembled a woman's in all other respects, and especially in the setting on of the ears.

In front the neck, viewed from the height of the nasal line, measures half a head in breadth; on a level with the supra-sternal facette, it is nearly as wide again. Divide the length of the head and neck into five parts, one-half (two and a half) of these will give you the breadth of the neck at the commencement of the shoulders.

From one shoulder to the other	2 heads.
Between the haunches on a line with the navel	6 parts.
Between the trochanters	5½ "
From the shoulder to the nipple	5 "

Profile:—

To the line of the navel	4 "
To beneath the buttock	5½ "
Arm, anteriorly at the elbow	½ part.
At the wrist	1 "
At the articulation	¾ "

Externally and internally, the thickness of the arm equals two parts towards the shoulders, and one part two-thirds at the elbow; a third of a head below the bending of the elbow, and one part at the wrist.

Thigh, transverse diameter, upper part ...	3 parts.
Thigh, ditto in the middle...	2½ "
Leg, ditto, on a level with the calf	2½ "
Leg, ditto, under the calf	1½ part.
Leg, ditto, under the ankle	1 "

On the inner as well as outer side, seen in profile, the thigh measures—

Upper portion.....	3½ parts.
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Middle portion.....	3 parts.
The knee and calf of the leg	2 $\frac{1}{4}$ „
The part below the calf	1 $\frac{1}{4}$ „
Above the ankle, profile	1 $\frac{1}{2}$ head.
Foot, anteriorly, diameter	1 $\frac{1}{2}$ part.

It is usual to subdivide the digital part of the foot into three equal parts or portions: the first comprising the great toe; the second, the second and third toes; the third, the fourth and fifth toes.

Behind the lower part of the leg, the part above the ankle and the back part of the foot, or heel—measurement one part.

The foot viewed in profile gives, from the sole to the instep

1 $\frac{1}{2}$ part.

The great divisions Cousin considers to be the same for woman as for man; but they vary considerably, as we shall afterwards explain more fully in Part III.

Cousin gives in her:—

Breadth, from one shoulder to the other....	6 parts.
„ at the waist or girdle	5 „
„ at the haunches	8 „

Seen in profile (antero-posterior diameter) the female figure gives—

On a level with the bosom and the haunches	5 parts.
At the waist.....	4 „
The thigh below the buttocks.....	4 „
The knee, the same as the neck	
I. O.	1 $\frac{1}{2}$ part.

Wrist, and leg above the ankle measure one-half the neck.

Cousin recommends to the artist to give to woman's stature a head less than that of man.

Measurements of the Child (Cousin).—When Cousin

wrote, the nature of human development and growth, the signification of the infantile, juvenile, and adult forms was entirely unknown. This ignorance of the philosophy of human nature, this absence of all rational theory, did not and could not mislead the great masters of antiquity; their talent for observation and their divine genius penetrated the veil of Nature, without clearly comprehending what they saw. But they saw *the truth*; genius and taste, and a love of the universal and of the perfect, accomplished the rest.



Living Infant.

For this and other reasons I do not attach much importance to the so-called measurements "of the child," by Jean Cousin.

The growth and development of the child is regulated by laws which do not exactly fall within the scope of rule and weight; in other words, its laws have not yet been fully determined. "The child measures five parts of woman, or five heads in height;" the expression is liable to a serious equivocal.

From the vertex to the genitals 3 heads.

Lower extremities 2 „

The navel is placed three and a half parts (equivocal again) below the nipple; and the inferior half of the body, half a head below the navel.

The foot measures the distance between the commencement of the hairy scalp and the mouth, or two parts one-third of a head. The length of the head is two parts and a half. But it is not said by M. Fau, whom I copy here, what parts these are. It must mean here merely the length of the nose of the individual drawn.

The diameter of the shoulders and waist are equal, being *each* one head.

In profile we reckon, in the child, four and a half parts to the waist, one head to the haunches, three parts of a head to the armpits.

The upper part of the thigh, viewed in front, has a diameter of a third of two heads; seen in profile, three parts and a half of a head. The knee measures two-fifths



Skeleton of the Infant.

of a head; the leg, above the instep measures the half of the neck. The fore or anterior part of the foot is as broad as the knee. The wrist measures in breadth the fifth part of a head.

These proportions are further stated to be those of a child about three years old. From three to four, the entire height is five and a half heads; from eight to nine, six heads; from twelve to fifteen, six heads and a half; from fifteen to seventeen, seven heads. I do not attach much importance to these measurements.

The systems of proportions proposed by M. Gerdy and M. Montabert do not differ essentially from that of Jean Cousin. Gerdy divided the whole height of the body, male or female, into eight equal parts or heads. The first comprises the head; the second extends to the nipple; the third extends to the navel; the fourth, to the genitals; the fifth, to the middle of the thigh; the sixth, to below the knee; the seventh, to the middle of the leg; the eighth, to the sole of the foot.

The head M. Gerdy subdivides into four equal parts; these regions or parts, as in the system of Jean Cousin, serve as comparative measures for the other proportions of the body.

The system of M. Montabert was more methodical; but he also divides the head into four equal parts. The full height he divides into 100 equal parts; at the pubis he placed the centre, or fiftieth part. It is unnecessary to follow out further a system, which an artist may, in the male or female figure, construct for himself.

Great Contour of the Human Figure—Modifying Influences.—Although a description of the exterior be-

longs more properly to Part II. of this work, it may be as well to advert to it here. In drawing the skeleton articulated, the artistic student may unhappily imagine that he is acquiring a just idea of the exterior and of the contour of the living frame; and he will be told this by persons unhappily still connected with and influencing his education. He will be told that he must generally, in his great pictures, draw the skeleton figure first, clothing it afterwards with its drapery of flesh and skin. But no idea can be more incorrect than this. Neither will he ever obtain a fine contour from a bony figure; the drapery spread over the bony figure or skeleton bears no resemblance to that which clothes the living form.

After completing the studies I have pointed out in this Part, the student should next proceed to draw the great contour of the body. The signification of these contours I reserve for the following sections; a word or two will suffice here.

Study and analyse the masses; no geometrical method will answer.* Draw the outlines frequently from the antique, attend not at present to what they mean; all this will be explained immediately. View and draw the outline in front, in profile, and at the back; all are beautiful in the fine figure.

Next let the student observe the varying colour of the



The Venus de Medici.

* Mr. Hay's attempt, although a failure, is the most ingenious.

skin in different regions in children, in woman, in man; diversified and modified by age and race, and even a little by habits and climate.

Study also the management of the hair; of the furrows, whether caused by muscular contractions, or produced by age; or, finally, due to a natural development independent of either. The colour varies also with muscular exertion, as over the joints; the breadth of some regions also, as of the wrists, varies from the same cause, as was long ago shown by Da Vinci.

It is not expected of the artist that he should sculpture or paint all these wrinkles and folds; but he must attend to their effects on the coloration in painting. The great artists avoided painting or sculpturing new-born children, or even those a few days old. They were aware, although they knew not the reason, that such forms were not strictly human, out of all proportion, and displeasing to the eye. They avoided them therefore instinctively, as a result of their taste and genius, although they knew not that such imperfectly-developed forms, in accordance with the laws of unity of the organization, represent more or less other lower forms of the organic world.

CHAPTER VI.

OF THE SKELETON GENERALLY, AND ESPECIALLY OF
THE HEAD, EXAMINED WITH OTHER VIEWS.

No peculiarities of the races of men and of individuals have received so much attention from the artist as those of the head, whether viewed as a skeleton or when clothed with soft structure. The anatomy of the head forms, in fact, the great and sole study of most artists. I shall first consider the skeleton of the head, reserving many remarks for the chapter on the form of the head as connected with race.

From the earliest period of recorded history, mankind has been divided into distinct races, whose form and physiognomy it is in general easy to discover. The great masters of the art have either neglected or despised these physical truths. They could afford to do so; but I question much if the smaller-minded men of the present day would admit of this. Little-minded men are apt to confound physical facts, which they call constants, with artistic truths, and an anachronism throws off their balance all minds looking out for constants. Rubens's Daniel is no Jew; his Sabine women are large Dutch Amsterdam *wrows*; such Venuses and Junos as were never seen out of Holland Proper. But all this we are forced to pass over, or rather never think of, because there are no such men now as Rubens. Raphael's Madonnas were merely good-looking Italian women, with a caste of the antique statues; Guido Rheni's Madonnas had divine

and angelic faces, such as were never seen in Judea; but we never think of this when looking at Raphael's works, or if we think for a moment of the astounding anachronisms, which such great masters overcame, it is merely the more to admire their art and power.

In modern art this will scarcely do; "the *constant*" must, I fear, be thought of by the artist, and a low, utilitarian, mechanical mind demands a fitness in all things; in time, in place, in race.* As the races of men differ in mind, so also do they differ in body, and especially in the head; they differ most in the external characters of the head, but the skeleton differs also not a little, at least, in form; and it is these differences of which I am now about to treat. The so much talked-of facial line or angle of Camper may as well be discussed here.

Let the student look attentively at the skeleton of the European head,† and draw it several times. He will discover some points which he must afterwards read through the living structures. Let him first attend to the male head. This is characterised by greater strength and thickness and weight; the protuberances marking the presence of the frontal sinuses are, first, especially observable in man, being wanting, but not uniformly so, in woman. Above the prominences are the frontal protuberances chiefly observable in those in whom, at one time, there existed a tendency to water in the head; secondly, in those whose heads retain something of the infantile form to mature years. At the sides are seen the temporal fossæ, bounded by an osseous crest, running from the external angular process of the frontal bone to near the mastoid process of the temporal. This ridge

* The Races of Men: a Fragment. By R. Knox (Renshaw, London).

† See Figure, p. 27.

presents varieties in strength; I have seen it strong in the Hindoo skull occasionally, but this strength is not characteristic of any race. In the animal nearest in form to man, it is a remarkable feature, forming a part merely of a system of crests, of which man retains but the rudiments or vestiges. This is a common occurrence with man and animals, each race and each species exhibiting, when perfect, its own development, —when imperfect, that of others.

The mesial line along the vertex is slightly elevated in some individuals; it is the vestige of crests which are prominent in many animals. The external occipital protuberance merits the attention of the artist, but especially and, above all, the form of the condyles, of the occipital bone, the form of the occipital bone itself, and the mode of its articulation with the first cervical vertebra or the atlas. Look at the position of the skeleton of the head with reference to the vertebral column; study its movements on that column even in the skeleton form; the reason will be given you afterwards. Observe the greater bulk of the male head, and observe how much of it is in front of the ear (*meatus auditorius externus*), compared with the female head; and now place the female skull before you, draw it, and compare it with the male. A greater delicacy of structure, diminished capacity, finer proportions, a lower vertex, a greater extent backwards of the occipital bone or occiput, behind the position of the ear; these characterise the female skeleton head. A narrow and depressed forehead, generally smooth; no frontal sinuses, or at least no prominence marking their presence; these circumstances mark the head of woman as of youth. The frontal projections scarcely appear before puberty in man, and most frequently

never in woman. This Canova forgot when he sculptured his Paris, forgetting to mark upon the brow that groove seen even in the Apollo, in the young Bacchus, in the young Hercules, characteristic of puberty and of manhood. The Paris, then, of Canova leaves the observer doubtful of its sex: no antique sculptor ever committed this error. He wished to make Paris beautiful, forgetting that, although beautiful, he was also a man; and he carved a figure which has been taken for a Minerva.

Of the skeleton of the face* I need say little or nothing; it bears no resemblance to the living face: it is its antithesis. Draw it to learn to avoid it; the malar or cheek-bones, so prominent in the dark races of men; the upper maxillary bones, so large also in them; the lower jaw-bone, with its symphysis, angles, and condyles, and coracoid processes, for the attachment of the temporal muscles.

Before considering more in detail the remainder of the skeleton, it may be as well to offer you a few remarks on the skeleton of the head, with a reference to its characteristic differences in individuals and in races.

Camper, an ingenious and observing man, a good artist, though no great anatomist, was the first to remark, that if to the outline of the noble antique face, as transmitted to us by the Greeks, two lines be applied—one running through the external meatus of the temporal bone forwards until it passes and projects beyond the incisive teeth of the upper jaw; the second line descending from the forehead, and so intersecting the first immediately in front of the maxillary bone,—these lines at these points of intersection would form an angle, which, in the antique figures of Greece, would

* See Figure, p. 27.

prove generally to be a right-angle; in the modern European, an angle varying from 80° or even 75° to 85° ; in the negro and dark races of men generally the angle descends to 70° , and even lower. Having once

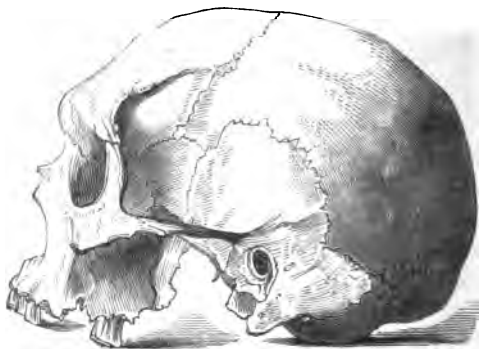


Facial angle, copied from Camper's works.

caught the idea that, somehow or other, this retiring and diminishing angle in the lower races of men marked their decreasing intellectual powers, Camper, as a man of genius, naturally did not stop here. He extended his idea throughout the organic world: from the Apollo to the negro; the ourang and chimpanzee followed; then the quadruped, the bird, reptile; last of all come fishes, whose jaws are in the inverse ratio of their intellectual organ, the brain. This was Camper's idea seemingly: when the brain is large, the face and organs of sense are small, and *vice versâ*; therefore, the ratio of intellect and of brain to the face and organs of sense is directly the inverse. I give you here a copy of Camper's figures, as found in his works. M. Gerdy has pointed out that they have been much misrepresented, and, I think, much misunderstood, especially by those who fancy that Camper really meant his idea to be taken up in a philosophic sense, and made the subject of a strict mathematical demonstration. In a

subsequent chapter, when describing the head clothed with soft parts, I shall enter more fully into this question. In the meantime let me state here the view of Camper's ideas taken up by the anatomist.

It was remarked by M. Cuvier that, if Camper really meant "the angle" to be used as a measure directly of the relation of the brain to the face, or, what he thought amounted to the same thing, the comparative ratio of the cranial cavity, and the ratio it bears to the face, this mode of the celebrated Dutchman was decidedly



Cranium of the Negro.



Cranium of the Tasmanian.

defective. For, first, he had overlooked the frontal sinuses; and, secondly, if it were really intended to compare the brain with the face, the area of the vertical section of the cavity of the cranium should be compared with the area of the vertical section of the face; the former indicating the extent of the encephalic organ in one sense at least; the latter furnishing what at most can be called a vague estimate of the osseous cavities intended to lodge and protect those two organs of sense which most prevail in the lower animals, namely, the nose and tongue. But, after all, nothing can be more vague than such measurements and comparisons, though sanctioned by the great name of Cuvier.

After this it became fashionable to look at the skull in a variety of ways. Blumenbach suggested the vertical view; it shows you the extent to which the upper and lower jaws project beyond the orbits and forehead in the dark races, as compared with the fair. I was the first, I believe, to suggest the basial view, which shows, much better than either of the above, the absolute



Cranium of the Caffre.

preponderance of the upper jaw in the dark races over the same part in the fair.

Compare together the skull of any dark person, no matter to what race they belong—negro, Tasmanian, Esquimaux, Bosjeman, Hindoo, Red Indian—with a skull of any of the European or absolutely fair races, and you will discover at once to which great group of the human family the skull in question belongs.

But none of these views give us any comparative measure of the human or brute intellect, and this was the great error; it extends under other formulas to the present day. The erroneous doctrine commenced with Camper; his first fact was a false one, thoroughly false. It was repeated by Sir Charles Bell and Mr. Haydon, who, strange to say, had not the power of observation to look about them in London and elsewhere, where they would have found hundreds and hundreds of persons whose profile equalled the finest models of antiquity. I have never been able to account for this extraordinary error in observation.

A pseudo-psychology, based on misconceptions of man's intellectual nature, has mingled itself up with these hasty artistic views of Camper, and with the



Cranium of the Chenook.

more rigorous demonstrations of Cuvier. To this I may afterwards advert.

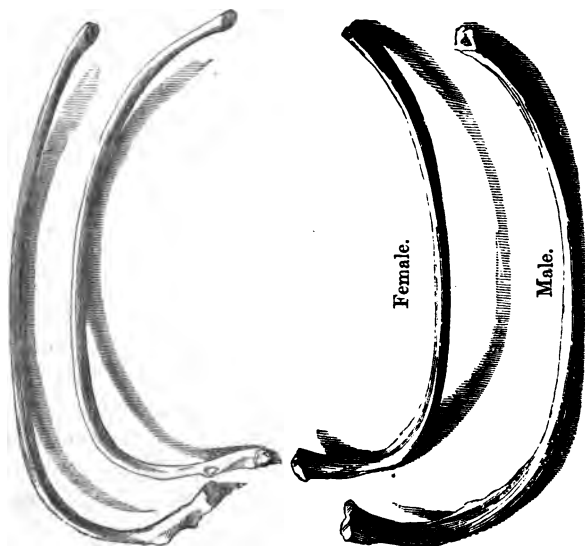
Passing from the skeleton of the head to that of the trunk, I find it necessary to call attention, first, to the vertebral column: the head itself is but an extension of the vertebral column; its extension upwards; its cephalic portion. All the other bones, directly or indirectly connected with the vertebral column, are appendages of it, or may at least be received as such without any great detriment to philosophy or to art. What the artist has to consider is, first, its form; secondly, its motions. These we shall consider in the history of the articulations; at present we have to do chiefly with the form and construction of the column.*

It is composed of thirty-three bones; if we include the cephalic portion or head, we must add four or five more, for the number has not as yet been determined by philosophic anatomists. But confining your attention to that succession of bones to which the name of vertebral column is usually given, you will find it composed of thirty-three bones, arranged in five divisions; namely, cervical (seven), dorsal (twelve), lumbar (five), sacral (five), coccygeal (four). These occupy so many different regions of the trunk. The bones comprising them vary greatly in the different regions, but they are all analogous, but not homologous; that is, each bone represents itself and no other. They are composed of similar or identical elements, such as spinous, transverse, articular processes or bodies, and a short canal at the back of the body of the vertebræ for containing and perhaps protecting a portion of the spinal marrow. But every vertebra differs somewhat from each other; they are not identical or homologous

* See Figure, p. 33.

structures, but repetitions of analogous organs. Let the artist look them carefully over, as a whole and as individual parts. The column cannot be understood as a whole until each part and each region be carefully looked at. Draw it a good many times, so as to acquire a knowledge of its curves, proportions, directions, setting-on of the superadded structures, position of the head, sacrum, etc. The ideas so acquired the artist may find of utility when he least expects it.

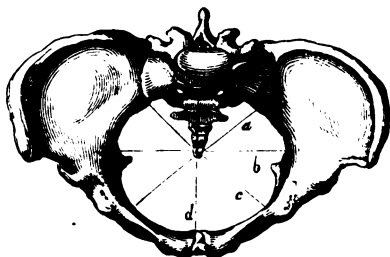
And now a few words as to the remaining structures; the ribs, breast-bone, and the costal cartilages. Draw them in the male skeleton, and observe the strength and arch-like shape of the ribs when compared with those of woman. Draw the male *thorax* carefully, comparing it with the female; they differ, or they ought to differ, as much from each other as any



The Ribs.

part of the body. Besides the slenderness of all the bones, the ribs have different forms; in woman, the fourth, fifth, sixth, and seventh ribs* represent small segments of large arches; in man, they represent large segments of small arches.

Place the female skeleton before you,† and compare it with the male, and draw each in succession. If you must know something of anatomy,—and it was but little that the first artists ever knew—let it be sound anatomy, free from errors and misconceptions.



Osseous Pelvis, male.



Osseous Pelvis, female.

Attend next to the five bones found in the lumbar region in the male and female skeleton. The space between the chest and the pelvis is much wider in woman than in man; the cause of this will be explained afterwards. The collar-bones are much stronger in man than in woman; they are differently shaped. The same remarks apply to all the bones of the superior or thoracic extremities. I again subjoin their names below;‡

* See Figure, p. 68.

† See Figure, p. 16.

‡ Scapula, clavicle, humerus, radius, ulna, carpal, metacarpal, and digital bones.

in drawing them, name them. An artist should show no ignorance in these matters, lest he be twitted by some smatterer and pedant with a *want* of anatomical knowledge.

The pelvis in man, and especially in woman, merits the attention of the artist. In man, it need not be particularised; in woman, observe the fine oval its interior presents, the great breadth of the haunch-bones, the want of depth in the true pelvis, the arch below the pubes, which in man is a triangle; lastly, the general delicacy and roundness of all the processes. It is this great breadth of the upper pelvis in woman which most deserves the attention of the artist. This has nothing to do, as the utilitarian philosophy would make you believe, with child-bearing; nearly all the views of structure based on a final cause are false: the theory is incorrect from beginning to end.

The finely-formed pelvis of the European woman, like the finely-formed head, is not very common. Perfection of form is the law, but not the rule; it is what Nature aims at, but what she seldom attains; it is the only truth abstractedly, but, like other truths, it is not always met with.

The remarks applied to the thoracic limbs will apply, *mutatis mutandis*, to the lower. Let the artist draw them carefully, studying at the same time the forms of the joints, their breadth, their relative position to each other. In the limb, we have the thigh-bones and the bones of the leg, the fibula and tibia, and the rotula, which belongs to the system of the osteoids, and not to the skeleton. In the foot we have the tarsus, metatarsus, and the bones of the toes. Although the living foot, when finest, bears least resemblance to the skeleton

of a foot, it is no doubt right that the artist should learn to draw the bones of the foot. In drawing them, let him study the outline of the arch they form, the position of the calceo-scaphoid ligament, forming the keystone of the arch, and explaining many singular circumstances in the form and motions of the foot, which anatomists and physiologists have failed to observe. Remark the greater length of the second toe, the proportion of the bones of the toes to each other, the narrowness of the tuberosity of the heel-bone; above all, the way in which the tibia rests on the astragalus; through this joint is transmitted the entire weight of the body.

I may now advert to the seemingly specific differences which mark the skeleton in the different races of men. It is mainly the head which interests the artist. To each race has been given its own form of body, colour, shape, dimensions, skeleton, muscles, brain, mind. They differ from each other in all these points. But this is not an artistic work on the races of men; no such work yet exists. What I mean to say here refers mainly to the woodcuts representing some of the best known races of men. The woodcuts represent—first, the European (Saxon); second, the negro; third, the Tasmanian or Australian; fourth, the Esquimaux; fifth, the Mongolian or Chinese; sixth, the North American Indian (Chenook); seventh, the Hottentots; eighth, the Caffre.

The European races of men differ also, in the form of the cranium, from each other, but the varieties in form are not so strongly marked. The Jewish and Gipsy skulls differ much, no doubt, from the European races of men, but I have had no opportunity of examining them.

The skeleton of the infant* differs in every respect from that of the adult. The facial angle is nearly 100° ; the head preponderates over all; the justly developed forms show themselves in time, as the limbs lengthen and the torso acquires strength.

In conclusion, I have thought it right to add, in a subsequent part of the work, a few additional remarks on the misconceptions in regard to the form of the antique brow and profile, in connection with Camper's facial angle and the still more modern phrenological views. These views, we shall find, as regards the antique head, are utterly false. Sir Charles Bell's assertion that a facial angle equal to the antique rarely, if ever, now occurs, is an assertion devoid of all basis in fact, there being nothing more common in Europe at this day.

* See Figure, p. 55.

PART II.

CHAPTER I.

IN as far as regards art, the human figure may be divided into an exterior and an interior. A portion of that interior has been already considered; deep as it is, it affects the exterior. These shapeless processes, these unseemly ridges, angles, and crests, these knotted, jointed, hideous forms, which you have seen composing the skeleton, approach and modify the exterior, even in the healthiest person, contributing not a little, as I shall presently show you, towards the production of that noble outline masking the interior, and becoming, in the young and beautiful, in the Venus, in the Diana, in the matchless forms of the Niobe and her daughters, all that is perfect. But over these bones, which really have shapes incomprehensible to human minds, Nature, to suit her purposes, has spread *three* systems of organs: the muscular system, the aponeurotic, and the integumentary covering of the body. How these three affect and ultimately produce the exterior and its outline, I shall endeavour to explain in this section of the work.

When the student commences the important labour about to be described, he ought well to consider the nature and character of the materials placed at his disposal. These may thus briefly be summed up: first,

drawings of the muscles and human frame complete; second, *écorchée* figures and plaster casts of the male and female complete forms; third, dissections of the muscles of dead persons, as placed before him in anatomical rooms; fourth, as regards the exterior solely, drawings from the antique and from the great masters; fifth, copies of these drawings; sixth, the living figure; seventh, the antique statues, and the original drawings themselves of the great masters.

I shall say a few words in respect of these materials, which are usually, more or less, at the command of the artistic student.

It is by means of the muscular system that men and animals move about; the muscles are the immediate organs of locomotion; as seen in the dissecting-room, they are all more or less disfigured, altered, and misshapen. In this state the student should never draw them; *his* object is to draw living muscles, not dead ones dissected by anatomical students, who do not even know the object the artist has in view, in looking at such dissections. Let the artistic student look at the frame so dissected, by all means; let him listen to its description, but let him make the dissections himself, it will benefit him, and give him a thorough knowledge of these all-important organs; but do not draw them *as dissected*, for mere anatomical purposes. Place near you, at the time you inspect these dead muscles, *the living figure*, or, if that cannot be, place near the dead some first-rate plaster cast of an antique figure, and sketch the muscles you have just studied from the figure, but not from the dissected muscles. In this way will the student learn to draw living muscles, and not dead ones; in this way will the student learn to read the exterior of the living figure and of the antique

statue, distinguishing through the integumentary surface (the most important of all) what form is due to bone, what to the actual contractile muscular fibre itself, what to tendon, and what to aponeurosis; and, lastly, what concerns him most, in what these deeper organs influence the contour of the living body, through the integuments masking and concealing all.

In studying from the text of this work, and comparing with it and copying the accompanying sketches, the student must not for a moment suppose that by such studies he may supersede actual drawings from the life, from the antique statue, and from the great masters; this fatal error is often committed. Copying from Rubens or Teniers, or Raphael or Da Vinci, will never enable the artist to become like these great men. Study their works he may, and must; but his study ought to be directed towards a comprehension of their spirit, and not their details. Nature, which furnished them with all those materials and ideas, will be equally indulgent to the student when he knows how to read the great book of life, to perceive the just and the true, the perfect, the absolutely beautiful. Rubens painted his two great works, and his style improved vastly, after visiting Italy, and examining for himself the works of Buonorotti; not "by acquiring from a contemplation of these works a higher knowledge of anatomy,"* which could not possibly happen; but like Raphael, of whom precisely the same may be said, they witnessed the grand flight which the immortal Florentine had taken in art, and, conscious of their own powers, they dreaded not making a similar attempt. But this was no base imitation; the flight of the eagle is not the less his own, though he follows

* Correspondent in the *Athenæum*, Oct. 26th, 1850.

into the azure vault of heaven the bolder swoop of his parent.

These remarks go some way towards explaining an observation of daily occurrence, namely, how comes it that from a contemplation of certain highly-finished productions we experience no pleasure, feel no emotions, kindle not at the sight, but remain passive, heedless, and unmoved; whilst a mere glance at a perfect work gives rise to the strongest emotions? It is this: in the one, the artist has *seen living Nature*, and *represented her alive*; in the other, the painter and carver (we can scarcely say artist and sculptor) have seen dead Nature, and followed her. Be it landscape or human forms, your paintings and sculpture must have an aim, an object—they must speak to the mind of the observer; if they fail in this, they resemble the unmeaning rhymes of modern poetasters, whose writings contrast so strongly with the true and great of ancient times.

A *chef d'œuvre* must, no doubt, always be the work of inspiration; but industry well directed will do much in approaching it, and knowledge is always valuable. The inspired genius sees the truth instinctively without being taught to observe; others are taught to distinguish the true from the false by education. This is the course I propose to you to take; should genius be happily present, it will not suffer from education.

The exterior is but little affected by slight ordinary movements; of this the student should be well advised. The large muscular masses show themselves in bold relief, as distinct from the impassible tendons and motionless bone, only during violent and energetic action. The artist then must not exaggerate the action of the superficial muscles; it is a great error to

do so, and ought scrupulously to be avoided. It savours of pedantry also, and this contributes to mar the effect. It also displays ignorance of the efficiency of the integumentary covering in masking and concealing the forms of all the muscles, bones, and joints. The superficial layer of muscles contributes most, no doubt, to the general form of the body, and to these the artist must give his chief attention ; nevertheless I shall show, in the course of this section, that on the full development of certain deep muscles, or at least some of the second layer, depends the beauty of certain portions of the human figure. On the full development, for example, of the brachialis flexor muscle, which is a deep muscle of the arm, depends much of the beauty of the arm, that is, its torosity and tapering form. The roundness of the female thigh depends mainly on the strength of the deep adductors and pectineus ; the roundness and tapering character of the forearm and leg on the strength of the deep muscles of these regions. And this reminds me of a single observation I ought to make here. I do not wish you to understand that I dissuade you from deep anatomical and physiological studies ; follow them out by all means, if your minds have that tendency, but bear in mind that, by doing so, you alter the character of your studies : the exterior belongs to art, the interior to science and to philosophy. The exterior has its philosophy too, which you need not neglect.

INFLUENCE OF THE SKELETON OVER THE EXTERIOR.

Independent of the forms produced by the muscles, their tendons and aponeurosis, the skeleton itself affects the exterior. The bones never really alter their actual forms, but they seem to do so by the varying

conditions of the muscles around them, and of the strength or weakness of the integumentary covering. The extremities and processes of bones produce at times elevations on the exterior, lines, depressions, according to the condition of the surrounding organs.

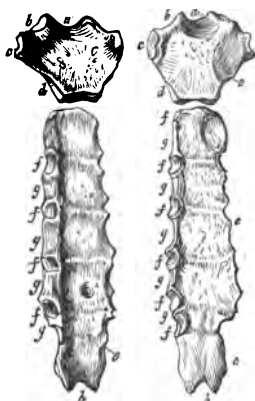
It is the cranium, of all parts of the body, which most influences the exterior form. It determines the ovoid of the head; as age proceeds, certain ridges and protuberances show themselves, not observable in youth. The frontal sinuses project; the temporal crests show themselves; even the over-developed mastoid processes may be seen. In the face, the shape of the nasal bones affects greatly the form of the organ; the cartilaginous skeleton forming its lower part affects the form still more. When the malar bones are large, they totally disfigure the face. In the finely-formed face, the outline of the skeleton is never seen, nor does it in any way influence the finer forms of the human countenance.

In the finely-formed neck, the skeleton exercises no influence whatever, excepting in the matter of proportion or length. The hyoid apparatus* is never seen. The same remark applies to the vertebral column, saving and excepting the rounded, smooth projection of the spinous process of the seventh cervical vertebra. This leading feature in the contour of the back adds to its beauty when covered, as in the young, with a dense, firm integument. In the torso, the skeleton appears in the finely-formed, not as a skeleton, but giving rise to grooves, furrows, and depressions of exquisite beauty. In the back and loins, a median or mesial groove of transcendent beauty marks the position of the chain of vertebræ;

* See Figure, p. 24.

the scapulæ are perceptible only as rounded eminences, graceful yet full. The crests of the ilia give rise to grooves or furrows of singular grace. In front, the breast-bone or sternebræ, as this chain of bones was called by my illustrious friend, the late M. de Blainville, gives rise to a medium depression or valley, whose exquisite form in woman requires merely to be mentioned; the curves of the ribs and their cartilages are never seen in fine forms; the collar-bones are most carefully concealed.

In the upper extremities, the skeleton influences the exterior, first, by giving rise in fine forms to a waving elevation, continued from the lower part of the neck to the top of the shoulder. These elevations mark the course of the collar-bones, to which, however, they bear no other resemblance. In the arm, properly so called, the skeleton must not appear. In the forearm, at the elbow, the influence of the skeleton shows itself on the surface. The ancon process, by its fixed and unalterable character, as contrasted with the surrounding muscular and other tissues, produces that beautiful depression at the back of the elbow-joint so characteristic in the handsome arm; but it is in the hand and towards the lower part of the forearm that the influence of the skeleton over the surface or exterior is greatest. The radius, *r*, and ulna, *s*, by approaching the surface, give rise to finely-rounded elevations; in the



The Sternum.

hands the bones show themselves as dimples and depressions. Nothing can be so unlike the finely-formed forearm and hand as the skeleton of these very parts.

It may be well, however, to point out to the student an observation, surgical, it is true, but which may be of use to the artist, and which it may not frequently be in his power to make. When the bones of the limbs are displaced at the joints, as in dislocations, or so broken as to ride over each other, the alteration in the form of the limb becomes occasionally so well marked as to be recognisable at first sight; at other times it is not so, especially when the person is young, his limbs full and fleshy. But should the dislocation not be reduced, the limb gradually wastes away, and after a time that becomes visible to all eyes which the most experienced surgeon detected with difficulty at first. Visit a pathological museum, and compare a sound healthy arm with one injured some years before by a dislocation of the head of the radius, and the object of my remark will be obvious. In drawing the limbs, then, you must put the bones in their place: they must not recede nor approach the surface in an unnatural way. I have always thought that many, at least, of the anatomical drawings of Da Vinci—and I am now certain of the fact, having examined for myself the sketch-book of the great Leonardo—were made by him merely to acquire an exact idea of the position of the various parts of the skeleton, and the extent of motion in the joints. For every joint, as we have seen, has its checks, of which some are osseous and some ligamentous. I had almost forgot to say, that when the thumb is slightly bent, the metacarpal bone gives rise to a slight elevation.

In the lower or pelvic extremities, the influence of

the skeleton is seen mainly at the trochanter and at the patella; in the leg the form of the tibia comes immediately to the surface, that is, in man, for in woman's more beautiful limbs it shows itself merely as a plane surface, slightly raised. The malleoli give rise to prominences in all limbs; in the finely formed they constitute rounded, smooth elevations; in the coarsely made, in the aged, in the emaciated by disease or want of food, the malleoli present sharp angular projections, destructive of all ideas of beauty. They, in fact, under such circumstances, represent skeleton shapes, which Nature endeavours as much as possible to conceal.

In the finely-formed foot, we perceive the influence of the skeleton merely at the joints of the toes, where they form beautiful depressions. The prominence of the heel does not in the least resemble the osseous process beneath it; nor does the ball of the great toe, though partly caused by the enlarged extremity of the first metacarpal bone, display any form to lead the mind to a conjecture that so unseemly and frightful a structure exists beneath the surface.

I wish it to be understood that in these remarks I have in view only the finely-formed female figure. The examination of Leonardo's sketch-book confirms me in all these views. Though a profound anatomist, physiological as well as descriptive, he never confounds, even in that sketch-book, the record of his private thoughts, the living with the dead. By the side of the dissected limb he draws the living one, with a grace and life and beauty not to be approached.

CHAPTER II.

EXTERNAL FORMS OF THE HEAD.

UNDER the term head I include, with all artists I believe, the face and the head, properly so called. Study its ever-varying forms in youth and age, in race, in individual character. Every feature of the face merits the deepest attention. The portion of the head above the setting on of the hair should equal one part (one length of the nose) in height; if not naturally so, the hair may be so disposed as to meet the deficiency. Then comes the forehead itself, that is, all that portion of the face which is above the eyes and nose, but below the setting on of the hair; its lateral boundaries are the temporal crests. The smooth (brent) brow of youth contrasts strongly with the wrinkled forehead of age and with the fleshy forehead of the gross and heavy sensualist, with the brute and scowling brow of selfish, coarse-minded men. The brow or forehead is a noble feature in thinking man,—large, ample, elevated, and broad; it is his redeeming feature. Not so in woman; her brow must not, it is true, seem contracted, but it must be small, low, and strictly proportioned to her small feminine features. It is a great error to suppose a large brow to be a beautiful feature in woman; it is not so even in man; nothing disproportionate is beautiful.

To return to the contour of the face, its shifting forms, its varied aspect, the student will note, as

regards the brow, first, the integumentary covering, composed, as in other parts of the body, of an epidermis or scarf-skin, a rete mucosum or coloured portion, beneath the scarf-skin itself, and forming, as it were, a part of the dermis or true skin, a cellular adipose membrane extended, like the integuments, over the whole body, varying in thickness and in the amount of adipose substance it contains, but always present, concealing the presence of the subjacent muscular and aponeurotic tissues. I shall hereafter speak of these four tissues as one organ, by the name of the integumentary covering of the body, or the common integuments. This integumentary covering varies, as we shall find, in colour, density, texture, etc., in various parts of the body; each part of which it is composed also varies. All these the artist, who would be great in his profession, must carefully study. If there be one part more than another, it is in the face that this system requires most to be studied. Its continual changes make its description difficult, for the head undergoes in its development as many changes as other parts of the body. If we examine it generally in the adult, we find that as yet the brow shows few of those transverse wrinkles and folds it afterwards exhibits. These folds and wrinkles are of two kinds: one set belonging to the skin itself, independent of the muscular layer it covers; the second set of wrinkles owes its existence to these muscles. The first set, or those connected with the skin itself, begin to show themselves not unfrequently a little before the adult period, generally, however, at or near that time; they increase with age until the brow is wholly marked with them. As with years the adipose cellular layer decays and the adipose portion disappears, so the integuments of the brow, as

well as of all other parts of the body, fall into wrinkles. On the brow these wrinkles or folds show still more than in other parts of the body. Thus the formation of wrinkles is a natural result of the *development by time*, a mark of age, an approach of the unfailing hand of Time. It is a mistake to suppose that such wrinkles have anything to do with the contraction of the frontal muscles I shall presently describe. These, no doubt, by contracting, can wrinkle the brow at any time, and it is just possible that in age they may become permanently contracted, and so wrinkle the brow permanently; but this theory I strongly question. Muscles do not become permanently rigid and contracted by age; such a phenomenon is unintelligible. We must look then to the other causes for the production of these marks and furrows on the brow, and I feel disposed to ascribe the whole to the natural development by age, to the decay of the portion of the subcutaneous cellular membrane, and to the muscular fasciculi falling into folds, not from rigidity and living contraction, but by their opposites, weakness, flaccidity, and a length of fibre no longer fitted to the parts they once covered.



Nasal Muscles.

Beneath the integumentary covering, then, as thus described, the artist will find the fleshy masses I have just spoken of, the frontal portions of the fronto-occipital muscles;* a little lower down towards the nose, the muscle called the fronto-nasal, or nasal slip of the fronto-occipital mus-

* See Figure, p. 85.

cles; around the orbits, and consequently extending to the temples and cheeks, the orbicular muscles of the eyes; beneath these and beneath the eyebrows, the muscles called *corrugatores supercillii* (corrugators of the eyebrows); lastly, occupying the temporal regions, the temporal muscles themselves. Scarcely a trait of any of these muscles is to be seen in the finely-formed living face; yet it is well for the artist to know their position, their uses, and in how far they influence the exterior as age advances.



Muscles of the Face and Scalp.

A fold or folds appear at the root of the nose, from a laxity of the integuments and a relaxed condition of the nasal slip of muscle, neither being any longer supported by the adipose cellular membrane; wrinkles appear at the temples, the result of age. The theory usually given for their appearance is the same as was applied to the wrinkles of the forehead, namely, a permanently contracted condition of the orbicular muscles. But this theory must also in this instance be incorrect: these folds are the natural result of the progress of age upon the integumentary covering; the

adipose tissue disappears, and the dermis falls into folds and wrinkles, converging towards the outer angles of the eyes. As age advances, the integuments waste away, becoming thinner; the veins show themselves; the temporal arteries may be seen in waving lines, ascending obliquely forwards from before the ears; the mass of the temporal muscle wastes away at the temples, flattens, and sinks inwards; then the bones begin to show themselves, and the cranium assumes the hideous form of a skull, with a dry and parched skin drawn over it. All these changes are natural; they are the mere results of the progress of man towards decay and dissolution. As they proceed they are observed, if not with dislike, at least with regret. However varied, however trivial they may be at first, they affect the beauty and perfection of the form—qualities which admit of no compromise, no compensation by means of others. The instant the *interior* shows itself through the exterior, however trifling the indication be, it marks not so much the approach of age as a tendency to dissolution. It is this which rivets the attention of the observer; it is not the age, for such appearances may occur in very young persons, it is the tendency to dissolution evinced by such changes—to dissolution, the most dreaded of all human events.

THE FACE.

It is to this section of the frame that the painter naturally devotes most of his attention. By a neglect of first principles, he continually paints portraits of persons which though mechanical fac-similes, yet bear no resemblance to the individuals, and fail to be recognised even by their most intimate acquaintances. But at present our business is with the analysis and struc-

tures composing the face; the exterior, in fact, and the interior.

Attend to the form and position of the eyebrows, their proximity to or distance from the margins of the orbits. Next, the character of the nose and its varying form, the setting on especially, and its mode of projection from the cheeks. In the Jew, when quite characteristic, the nose forms, as it were, part of the upper jaw, and not a distinct organ; or in other words, there is no proper line of demarcation between them; a hideous deformity, characteristic of the race.

Let the artist look carefully to the form of the lobe of the nose and of the nostrils, to the varying colour of the face at various points, the beard in man, the regular or the ill-shaped mouth and chin; all these are characteristic features in the races of men.

The furrows which appear on the surface of the face seem to be but little connected with the subjacent muscles. It is questionable if the dimples occurring on the face are caused by muscular action. The eyelids and the aperture between them differ remarkably in different persons and in different races of men. The lower eyelid is shorter than the upper, as also its eyelashes. In the antique, the form of the eyelids, eyeball, and orbit generally was perfect. The eyeball itself was always deep-set. In modern England we see many a fine female face ruined by the forward position of the eyes, giving to the person a fierce, bulldog look and an indescribable vulgarity. The surface of the eye need not be described further than by naming what is seen on it. The parts to be attended to are, first, the dark pupil or centre; second, the coloured circle or iris; third, the white fibrous sclerotic membrane. The angles or commissures of the eyelids

are not precisely on the same plane, the outer being a little elevated. In certain races, as in the Mongolian, the line is singularly oblique. The orbital arches elevate slightly by their presence, the exterior investing them at the point the skeleton approaches the surface. I do not think that the nasal groove has anything to do with the anterior margin of the common levator muscle.

The external ears, when finely formed, are a beautiful relief to the sides of the face. Their functions



Ape-formed Ear.



Antique Ear.

are not well understood, but their beauty when so formed is unquestionable. Here the utilitarian with his coarse mechanical theories is sadly at fault. To be beautiful and perfect, the ear must be strictly proportioned—first, to the head and face of the individual to whom it belongs; secondly, its various figured portions must also be distinct and as if chiselled, and they also must bear a strict proportion to each other. Keep this in view in drawing the human ear: first come forms; secondly, proportion. It is as difficult to find a perfect ear as it is to find a perfect human being. One of the most common varieties, that is, deformities—for all varieties are deformities, as I shall afterwards prove—is the absence of the lobe.* The lobe is peculiarly

* See Figure above.

human, and when wanting in man or woman causes the ear to resemble the ear of an ape, and you will find that persons with ears so formed have something of the disposition of the monkey. When the helix is ill shaped, spread out, and large, the ear resembles that of the dog or ass, and so on; lastly, the ears may have grown to their full size, and yet resemble in form the ears of the monkey. All such varieties are comprised in one law, the law of unity of the organization. There are no *lusus naturæ*; such ideas belong to old women and to theologians of the old school. Everything in nature obeys fixed, eternal, unchangeable laws; the laws of deformation are as regular as the laws of perfect formation. The one shows a return to the unity of organization; the other shows the carrying out the full development of the individual, or the law of specialization.

Behind the ear the skeleton approaches the surface under the form of the mastoid process, but even here the tendinous attachment of the sterno-mastoid muscle affects the form of the skeleton, as seen through the surface.

Thus have we seen, notwithstanding the number of muscles, both superficial and deep, which are found beneath that surface I have just described, how little the exterior is influenced by the interior in the finely-formed face, in the antique, and in the living figures resembling the antique, and yet we shall find the features deeply affected by age, passions, instincts, education, sentiment. To understand this we must now attend to the anatomy of the interior, for it is in this we shall find the key or explanation.

See that meagre, slouching man, as he creeps along the edge of the pavement; he is reading a paper con-

taining the latest quotations of the stock-brokers' list. *This man is a money-lender*; he has little or no flesh on his bones; he lives in a garret, and feeds with relations and strangers. Now what means that demoniac and fiendish look he wears at this moment? I will tell you; he is looking at himself. This is the secret; his mind being wholly selfish and, of a consequence, intensely fiendish—self being the arch fiend of this world—the muscles of his face obey the prevailing character, and act accordingly. Now look again at the same person; he has seen you in the interval,—the electric shock, which shoots from pole to pole in a space of time which a second cannot reckon is not so rapid as the change on this man's countenance. His reason has expelled the fiend and the fiendish look, the demon look, which resembling nothing on earth, must therefore not be of the earth, but a personification of the evil principle. And now a smile sits on that visage, it brightens up, the fearful scowl gives way to a cheerful, inviting one; yet nothing has happened further than this, that the person you now look at sees you—an instant before he merely saw himself; from the brute animal he has become a man.

To draw men's faces, then, you must paint them, not when they are looking at you, but at somebody else. But before I describe the machinery by which these sudden changes are so easily effected, permit me to make a few further remarks on the exterior and interior as they naturally act and react on each other.

The new-born infant brings with it into the world much of the embryo forms, which are not strictly human; hence the great masters always avoid drawing or sculpturing the new-born infant. It ought never to be represented by the chisel or pencil.

In infancy the head is most rapidly developed, and for some years the cranium and brain are disproportioned to the face and to all the rest of the body. The occiput is prominent, the hair of the head scanty; the frontal protuberances forming, as they do, the nuclei or centres of ossification of the frontal bones, are more remarkable at this period than at any other. In early infancy the brow is perfectly smooth, a slight down marks the future place of the eyebrows. The eye nearly fills the orbit, and is prominent, it is without expression for some time; by and bye comes expression, speculation. The eyelids seem of equal length. In a word, the great elements of beauty are absent; the required development has not taken place, nor for a long period afterwards. Portraits of children are useless in every sense. Even the external ear has not acquired its lobule, and may never acquire it, retaining throughout life its organic infantile forms.

By and bye all is changed, the features become developed, and at two or three years the infant becomes the child, and is often extremely beautiful. But even this beauty of youth is not based on form, and is therefore imperfect; nevertheless, it satisfies the mind for a season. I shall afterwards fully explain the reason of this in Part III. It is the beauty of youth, and this continues to puberty. It was mistaken by Winkelman for absolute beauty. The source of his error, in which he was finally followed by Mr. Haydon, will also be explained. At last, the forms acquire that maturity and beauty which it is the object of this work to describe and explain.

Were the human features to retain even to forty the forms and proportions they not unfrequently have at puberty, the world would abound with women of

surpassing beauty, with thousands resembling the antique statue called the Niobe, with others resembling the Juno and the Venus of Melos; but it is at a varying period, after the beauty of youth has had its season, and the adult beauty, when it occurs, has shone for perhaps a still shorter period, when these changes commence in man and in woman, disturbing all the proportions, and so disfiguring the individual as to render our young friend of twenty scarcely recognisable at thirty, still less at forty, least of all at fifty. Now what has happened? The philosophic history of these metamorphoses, momentous to man, but especially to woman, has never been given.

Briefly, and before entering on the task which I must reserve for the next chapter, let me trace with you the anatomy of the face, the history of those agents, the muscles, tendons, and aponeuroses, which play so important a part in the metamorphoses I am about to speak of, whether these changes be momentary, as in the case of the money-lender, or alternately fleeting and permanent, as the case may be. A few pages will suffice for the description. The occipitofrontal muscles corrugate the scalp and forehead alternately, and raise the eyebrows; the orbicularis palpebrarum closes the eyelids; the corrugator supercilii contracts the eyebrows; the nasalis elevates the nose, or acts as a fixed point for the frontal muscles; the triangularis nasi expands the nostrils, but there are small rudimentary muscles connected with the cartilaginous skeleton of the nose, which also act in strong expression. These have not been well described by anatomists.

The great and the small zygomatic muscles elevate the angles of the mouth; they cause the cheek to

project, and they deepen the furrows and dimples of the face ; the orbicular of the lips is the great muscle of expression, and the antagonist of most of the others. There are two muscles, called levator labii superioris and levator communis, on the cheek, and close to the nose ; these elevate the upper lip and the wing of the nostrils. They are also powerful muscles of expression ; but the same remark applies to the depressor labii superioris, to the levator menti, to the depressor anguli oris. It is on the living face that the ever-varied combinations of these muscles must be studied. No knowledge of anatomy can supply a defect in powers of observation. It may make the pedant, the anatomist, the hard mechanical painter and sculptor, without feeling and without taste, but it cannot make the true artist. He must only draw what Nature intended should be seen, that is the exterior. A knowledge of the interior can avail him only in correctly reading the other.

CHAPTER III.

ALTERATIONS IN THE FORM OF THE HEAD AND FACE
IN MAN; THE NATURAL RESULT OF HIS DEVELOP-
MENT.

WHAT *age*, *absolute age* can effect in altering the forms of the head has been graphically portrayed by M. Fau in the descriptive text of his excellent work. Moralists of all ages have not failed to note it; it is a painful subject, on which man likes not to dwell. "Age has its beautiful also," says M. Quatremère, in his view of the "Objects of the Plastic and Imitative Arts;" but there I differ from him *in toto*, and by that expression alone could I readily have discovered that M. Quatremère's theory, however ingenious, wanted that solidity which absolute truth can alone bestow. There is, there cannot be a beautiful in age. I do not speak of the revolution of years, I speak of the symbols of age as they show themselves in man and in all animals, in every living thing. The exception in favour of the venerable and noble ruin, the sere of the autumnal leaf,—these are but seeming exceptions, not real. *Youth* and *youthful forms*, for these terms are not synonymous, are but accessories to the absolutely beautiful, not the essentials; but age and aged forms imply its absence on every and all occasions.

In man, as regards the head, age destroys the proportions and contours; for, first, the adipose-cellular cushion of beauty disappears, exposing the interior

at all points; the hair is lost or becomes silvery; numerous wrinkles disfigure the forehead, although in the highly intellectual these often do not appear until late in life; a mesial vertical one often appears early, extending to the root of the nose. The nose has already lost its form; from a loss of teeth the jaws approach permanently, and an important relative proportion of the features is lost; withered cheeks hang down in loose folds, extending to the neck, and deep grooves separate them from the nose and mouth. The eyeball sinks within the orbit, and the orbital margins become prominent; the eyes lack lustre; the temporal wrinkles become permanent and numerous; the ears lengthen, and are obstructed with hairs; at last a fine network of wrinkles spreads over all the face; the shape of the lower jaw-bone may be traced, and the interior becoming still more apparent, all beauty vanishes.

But long prior to these terrible ravages, the result of years, upon the human frame, modifications have taken place, arising not merely from a succession of years, but from other deeper *causes*, which I shall now endeavour to trace and explain. They have been misunderstood by some, denied by others, neglected by many, to the artist they have never been pointed out or explained.

Whoever carefully looks at the head and neck, for they go together, of youth, of the stripling, say of fifteen, sixteen, or seventeen years of age, will remark that description of beauty which Winkelman mistook for the absolutely beautiful. The entire head has an intellectual look; the brow is smooth and comparatively large and broad; nose and mouth small; fine proportions prevail, not indeed equal to the perfect

adult, antique form, but comparatively fine; the eyes are full and lustrous; and, in a word, "the interior," with its frightful apparatus of bones, and sinews, and muscles, is wholly concealed; but sooner or later, as the case may be, a change comes over the forms of the face and neck. Twenty is at hand; the adipose layer begins to leave the surface, to decrease, to disappear; anatomical forms show themselves in the neck; the brow and eyes appear smaller than they were, not that they are actually diminishing, but the jaws are growing, and with them the mouth and cartilages of the nose: the proportions of the face are reversed. Now watch the further progress of the development from twenty-four and twenty-five, to thirty-four and thirty-five: the brow has become smaller and smaller, that is, the face (jaws) has grown larger and larger; the sympathies of the thoracic, abdominal, and pelvic organs are telling upon the face and head. Disproportions of every kind may appear even at twenty-seven or thirty, and that intellectual-looking, spiritual, finely-formed youth, whom you might have perhaps mistaken for something of a genius or at least talented, and if not talented, at least an ingenuous, honourable, straightforward, and truth-loving person, has either, as is said to be the case uniformly with the Neapolitan, assumed the forms of the unmistakable scoundrel, or, as in the Saxon and other races, acquired proportions in the face and head, stamping the selfish, sensual, grovelling, dodging, servile, sneaking, cunning animal in all its perfection. The grand error committed not merely by the artist, but by the teacher and by all others, is the pronouncing too early on the character of youth. Wait the development of the passions before you decide; wait until you see the results of the symp-

thies of the organs of the chest, and the abdomen, and the pelvis upon the face, where all these organs have their commencement, or at least their sympathetic and sympathising types, before you pronounce on the intellectual character of the man.

Between the extremes there are all shades of development: from the youth, who at twenty-seven degenerates into a selfish, grovelling animal, to the man who, at fifty, and sixty, and seventy, still retains on his face the remains of youth, of intellect, and of graceful and young proportions. For in some the development, which tends to degradation, progresses but slowly; in others it is rapid and decided. I have watched these changes in hundreds of young men, my own students, who have grown up, as it were, under my own observation, and whom I have seen some years after the sympathetic changes I speak of have taken place. I can no more doubt the phenomena and their real causes, than I can the evidence of my senses. Numerous instances will, no doubt, suggest themselves to my readers.

Should the young man happen to be an athlete or have a something in him of that temperament, the changes are modified, but do not essentially differ. No one shows more hideously the anatomy of the interior than the athlete, when he has undergone that development, which must seize him sooner or later, and which in him is often premature.

If you now look to woman, we shall find that changes precisely similar happen to her, generally less marked it is true than in man, but still distinct and quite observable. There is a burst of beauty in woman at puberty, at times astonishing all beholders; this may last for two or three years, but seldom so long; in

some only a few months. In short, the sympathies of the chest, the abdomen, and pelvis tell at last on the face, head, and neck, and on all the features. The jaws enlarge, and with them the mouth and nose, disfiguring that fair face of eighteen and twenty, which the admiring lover fancies must be permanent; and at twenty-four it is not unlikely that the person can no longer be recognised even by the most intimate acquaintances of their youth. The ill-looking girl of twelve may become a beautiful woman. The beauty



Cutline of the Niobe.

of seventeen or eighteen may grow into a plain-looking person of twenty-four, with large mouth, and nose, and jaws; small eyes, and a brow either upright, square, masculine, and coarse, or narrow and contracted, low and disproportioned. A want of the elevation of the upper part of the head, so essential to beauty, and which in youth was not observed, by reason of the smallness of the face, is now apparent. Then arises the necessity for decoration, to restore if possible the disturbed forms, the lost proportions, the equilibrium of the head, face, and features. The cap, supported by the hair, restores the elevation of the vertex; collected into a mass at the back with pendulous ornaments, it counterbalances the large, square, upright forehead. The ear once more appears to occupy its place in the centre of the head. Artificial flowers and lappets make up for the natural fulness and ovoid form of the beautiful face; the raised collar conceals the sinewy trapezii muscles in the back of the neck, which destroy the beauty of so many persons. Let woman decorate by all means, but decorate with taste and in the right direction; let her decorate, in order to fulfil her great mission on earth, the pleasing and delighting of man.

CHAPTER IV.

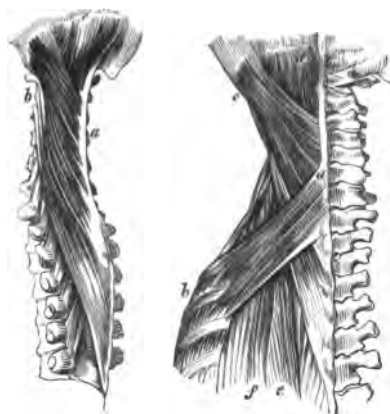
Look at the neck of a fine woman, and observe how little of the interior, that is, the anatomy, is displayed or intended to be displayed by Nature. The head moves on a pivot, taking along with it the first vertebra of the neck, hence its freedom of motion; all the other movements are divided amongst the remaining cervical vertebræ. I shall first speak of the forms of the neck in woman, next in man, and add a few words on the forms which the athlete displays. The forms seen in this region in the very young and very old will also be adverted to. Woman, full-grown, beautiful woman,* is the standard of all excellence, all beauty, all perfection. On the front of the neck, the slightest elevation imaginable marks the position of the thyroid cartilage; a little lower down is a rounded, smooth elevation, or rather fulness; this is due to the presence of the thyroid body or gland. A depression seen below this is the supra-sternal fossette, just apparent but never absent in the finest antique busts; it is occasioned by the swellings which the sternum and sterno-mastoid muscles form around the cavity. But nothing can be so unlike the beautiful exterior I now describe as the internal anatomy which partly gives rise to it. In fine and healthy persons the integuments, with which I include the superficial fascia, are comparatively thick, firm, and full of juices; they completely conceal the internal forms, giving to them another form, an exte-

* See drawing of the Niobe, p. 98.

rior, that form which Nature intended should meet the eye. But all this has been already explained, and may readily be comprehended by attentively observing the neck of a finely-formed statue, or the woodcut of the Niobe at page 98 of this work; scarcely anything more is to be seen in the fine, rounded, taper neck of woman. Two transverse lines cross the neck; they belong to the integuments. The thyroid cartilage must not be shown, nor anything more, saving the prominence at the bottom of the back of the neck, formed by the spinous process of the last cervical vertebra and the slight depression just above the collar-bones, marking the space between the sternal and clavicular attachments of the sterno-mastoid muscle.

Such is the neck of beautiful woman and of youth generally, before the full development of masculine and imperfect forms. When these have taken place, we discover, more or less distinctly, in the neck the following traces of "the interior." An elongated cervical depression on either side, of the form of the letter V, caused by the margins of the sterno-mastoid muscles. The external jugular vein may occasionally be seen. The elevations of the collar-bones, which in the handsome neck form beautiful, smooth elevations, may be traced in the coarse neck throughout their whole length. The course of the sterno-mastoid muscles may be traced, also the supra-clavicular hollow. The trapezii muscles, seen so distinctly in the ill-formed neck, are represented in the woodcut at page 112, with the latissimus dorsi and the great lumbar aponeurosis. To that woodcut I refer the student for a view of the superficial muscles, cautioning him that it is not upon the strength of these that the beauty of the back of the neck, of the back, properly so called, and of the

loins depends; and to render my meaning clearer to him, I have caused to be placed here two woodcuts displaying, though imperfectly, those deep muscles whose strength or weakness affect in so remarkable a degree the form of the back.



1
Deep Muscles of
the Neck—side
view.

2
Deep Muscles of the
Neck—back view.

These woodcuts (1 and 2) are intended to give the artist a view of some of the muscles, which begin to show themselves through the exterior in emaciated persons. In figure 1, *c* marks the *complexus major* muscle; *b* the tendinous attachments of

the *splenius colli*; the top of the *splenius capitis* may also be seen between the letter *b* and the top of the *complexus*; *a* points to the *ligamentum nuchæ*, that elastic ligament which, filling up the space between the occipital bone and the spinous process of the last cervical vertebra and first dorsal, stands in the place of elongated spinous cervical vertebræ, rendered impossible by the movements of the head.

It is this elastic ligament, always somewhat tense, but imperceptible in the finely-formed neck, in consequence of the strength of the deep muscles, which, in the ill-formed neck, shows most unpleasingly in the

back of the neck. The two woodcuts explain the causes of these varying forms to the student.

In figure 2, *d* marks the top of the complexus; *c*, that of the splenius capitis; *a*, the ligamentum nuchæ and superior attachment of the serratus superior muscle; *f e*, the sacro-lumbalis and longissimus dorsi, those powerful erector muscles of the spine, on whose strength so much of the beauty of the back and loins depends.

The fulness and roundness of the neck depend greatly on the strength of the deep muscles. It is the same with the arm and thigh.

In *childhood* the neck is short and round, without distinct form. It seems, especially in young children, too slender for the weight of the head. The undressed child when sculptured is never pleasing to the eye, because its forms and proportions are defective.

In *old age*, on which I need not dwell, the anatomy of the interior shows itself, and the skin hangs in hideous wrinkles. Two deep folds of skin extend from the chin to the breast. The larynx becomes shockingly prominent, which it always is in the coarsely-formed male neck; all the depressions deepen as the margins of the muscles become more and more distinct. The neck resembles a dissection, and the nearer it approaches this by so much the more is it frightful. It is not age which displeases man; age is time, and there is no such thing as time. It is decay and the appearances which indicate its approach that destroy all beauty, and affect with horror the eye and mind of the observer.

In the young athlete the form of the neck is altogether peculiar; it is long, round, and of great strength. It descends nearly straight from the oc-

ciput to the back, the hollow of the neck thus disappearing, as it were, in consequence of the vast strength of the deep muscles. The head is set into the top of the column, as if it were merely the cap-



Head and Neck of the Young Athlete.

stone or rounded termination of it, and not a part distinct. This gives to the head that bold look of defiance which characterises the athlete, whether he be a strong man or not. It is the mental character and the forms indicating that character, not the absolute strength or size of muscles, which distinguish

the athlete amongst all other men. In the young athlete the neck, therefore, is handsome; with age the markings of the muscles and other internal structures show themselves as in other persons, and the neck becomes unsightly. The changes effected in the forms of the neck by its varied movements must be studied in the living body. In strong action the elevations due to the muscular masses swell more and more; the tendinous structures and bones remain unaltered.

EXTERNAL FORMS OF THE TORSO OR TRUNK.

The trunk is composed of the chest, the abdomen, and the pelvis. The artist views these great divisions as one, calling it the torso. Recollecting what I have said with reference to the division of the external forms in the head and neck, with reference to the individual, I shall at once proceed with those forms we meet with in the finely-formed woman, next in those of the well-made man, then in youth and age, lastly, in the athlete. I take it for granted that the student, whilst reading this chapter, has before him either the living model or a cast of the Venus of Melos or of some other antique Venus.

In the mesial line, and just below the sternal facette, commences the sternal furrow, *o*;* this furrow extends to the pit or hollow of the stomach. The furrow is caused by elevations on each side, which depend on the strength of the pectoral muscles and fulness of the bosom; the bone forming the base of the hollow is the breast-bone. The hollow of the stomach is in woman a soft cavity caused by the prominence of the cartilage of the seventh rib and adjoining hard structures. Here the sternal or mesial furrow resumes its course down-

* See Woodcut, p. 106.

give rise to the furrow. In woman, the mesial furrow ceases at or near the umbilicus; a smooth, round elevation follows to near the pelvis. Another elevation marks the site of this bone.

In man, when the pectoral muscles are not well-developed, the projections of the sterno-costal cartilages may be observed. I need not describe the form of the pectoral muscle, *a*, nor of the small pectoral beneath it. When both are fully developed, they give rise to a beautiful plane surface, of a triangular form, which we may call the bosom. The bosom of the athlete resembles that of woman, in consequence of the vast size of the pectoral muscles. There is a small triangular interval, *s*, between the upper and outer margin of the pectoral muscle, the deltoid and collar-bone: it is well marked in a fine figure. The plane, then, of the pectoral muscle, which is of great beauty, is triangular. The nipple in man is placed nearly on a level with the superior margin of the fifth rib.

The ancients in their athletic figures marked somewhat strongly the arch formed by the costal cartilage, *r r*. This arch in the *antique torso* marks the extent of the chest downwards. The elevations and depressions at *q q* mark certain attachments of the recti muscles to the exterior of the chest, and a few digitations of the serratus magnus muscle.

From the convexity of the chest proceed the recti muscles, *u*, of the abdomen, situated on either side the abdominal mesial groove. These large muscular masses are traversed by transverse tendinous portions, *v*, which cause the transverse depressions on either side the mesial groove, chiefly seen, however, in man and especially in the athlete. There are two or

three on either side, but they vary in number. These tendinous intersections, to which the skin adheres, divide the recti muscles into so many distinct portions, marked by square-shaped projections.

A groove may be observed on each side, *e e*, following the outer margins of the recti muscles. These grooves, called *lineæ semilunares*, mark the breadth of the recti, and are caused by a tendinous conjunction of the great abdominal muscles. On the outer side of these grooves is a somewhat plane surface, extending quite to the grooves. This flattened surface is caused by the tendinous character of the subjacent structure, it being the tendinous expansion, in fact, of the external oblique muscle of the abdomen, *w*; the convex iliac groove, caused by the line or curved margin or crest of the iliac bones, is not seen in this view. The groove extends forwards and downwards in the groin; these grooves limit the torso inferiorly and laterally. They vary in depth in different persons, according to the strength of the muscles and abundance of the adipose cellular tissue.

Laterally, the torso terminates in the axilla. Two powerful folds of skin shut in the axilla behind and before. They cover and conceal in the fine figure the margins of the pectoral muscle in front, and the *latissimus dorsi* muscle behind: they may be called the torso-humeral folds. By raising the arm, the arched outline of the ribs may be seen in man, but not in woman, and the intercostal spaces, descending obliquely from above downwards, and enlarging or widening as they descend.

Laterally, may be seen, especially in man, a convex line, *n n*, with elevations and depressions; these are formed by the digitations of the *serratus magnus* and

external oblique muscles: they extend to the tenth rib.

The hips or haunches in reality form a portion of the lower extremities, but are usually included in the description of the torso.

There is first a depressed surface, corresponding to the gluteus medius muscle and to the tensor of the aponeurosis; next the prominence of the trochanter major, and this is followed by a depression caused by the tendinous nature of a portion of the gluteus muscle. The ample convex prominence behind this is caused by the gluteus maximus muscle and by a thick layer of the superficial fascia laid over it. It is to the sometimes enormous deposition of fat in the superficial layer or tissue over the gluteus muscle, that the Hottentot woman after marriage owes her peculiar form.

X The great elevation of the gluteus maximus, especially remarkable in the finely-formed woman, is limited below by the transverse inferior groove; this divides the haunch from the thigh. Behind, the swelling extends to a triangular plane surface and deep intergluteal groove, terminating the torso inferiorly and behind.

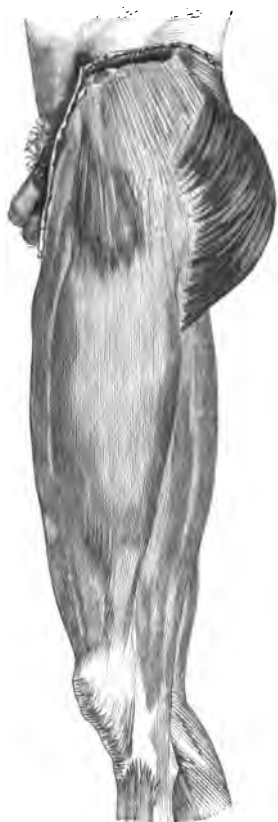
Still further to assist the artistic student, I have thought it right to place these two woodcuts before



1

Muscles of the Lower
Extremity.

him; the one (figure 2) representing the outer side of the thigh and haunch, displaying merely the superficial



2

muscles, which, from above downwards, are the tensor fasciæ, a small portion of the gluteus medius and maximus. These form the haunch, as seen in this view; below it is the thigh and knee-joint, as seen on the outer side. No lettering has been placed on this woodcut, as not being required; the vastus externus and biceps muscles are the only ones prominently seen here. The view has been given to accustom the artist to sketch the outline of the haunch, the thigh, and the knee-joint, with the hollows and elevations to which the muscles, tendons, and bones give rise. In the accompanying woodcut, marked 1,* which may be viewed as the comple-

ment of the one just described, I have given a view of the back of the thigh, haunch, and knee, the integuments, superficial fascia, and aponeurosis having been removed.

* See page 109.

In this woodcut (1, page 109), *a* marks the lower portion of the abdominal muscles; *b g*, gluteus medius; *c*, aponeurosis cut across; *d*, vastus externus; *e f*, biceps flexor; *g, h, i*, gemellus; *m, o, n, l, k*, the flexor muscles of the leg, namely, semi-tendinosus, semi-membranosus, etc.

Turn next to the posterior surface of the torso, reckoned by artists the finest part of the human frame. To make the front beautiful, Nature had many difficulties to overcome, many vital organs to conceal, anatomical organs of the most appalling shapes when exposed. It is otherwise with the back. The extended and beautifully waving vertebral column forms the basis of the surface; muscles of great length, uninterrupted by markings or grooves, fill up the hollow spaces of the vertebral grooves, whilst an integument, of a velvety softness and resplendent in colour, invests and conceals every anatomical form.

From the seventh cervical vertebra to the last lumbar there extends a mesial groove, varying in breadth and depth. At the bottom of the groove are the spinous processes of the vertebral column, completely concealed by the swelling of the lateral muscles. Thus the groove which contributes so much to the beauty of the back of the torso is formed. At the top of this mesial groove is the triangular flat surface formed by the tendinous attachments of the trapezii muscles to the spinal column. The spine of the scapula is not seen in a fine woman, but is marked sufficiently in some male figures. In very muscular persons it assumes the form of a groove, in consequence of the size of the supra-spinatus and infra-spinatus muscles. The aponeurosis of the deltoid, the aponeurosis cervicalis, the trapezii inferiorly, and the intermuscular space, where the ribs ap-

proach the skin, also cause slight depressions. There is a slight elevation where the rhomboid is subcutaneous. The lateral dorsal grooves are formed by the outer margins of the long muscles of the back.



Muscles of the Torso—back view.

k, Top of the sterno-mastoid; *a*, trapezius; *l*, deltoid; *c*, infra-spinatus muscle; *d*, teres minor; *e*, teres major; *h*, portion of the great pectoral; *g*, attachment of the serratus magnus; *b*, fleshy portion of the latis-

simus dorsi; *ff*, oblique muscle of the abdomen; *pp*, gluteus maximus.

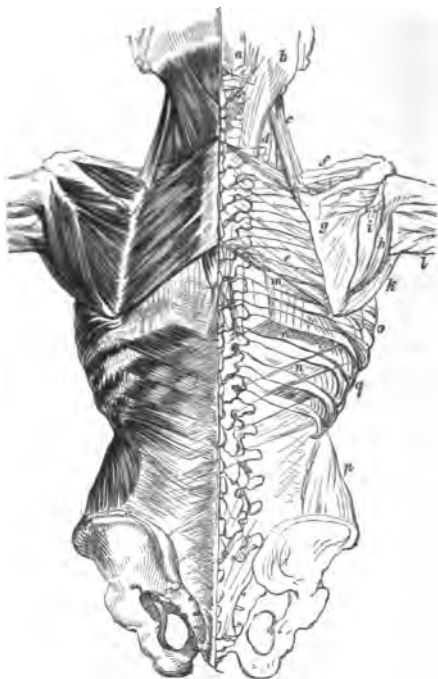
At the lower part of the region I am describing is a lozenge-shaped surface, formed by the lumbar aponeurosis. It extends from the last dorsal vertebra to the median groove of the hips; at the angles there are facettes or depressions caused by the presence of the iliac bones, which here approach the surface, or become subcutaneous. The vertical groove indicates the line where the tendinous origins of the abdominal muscles unite, after having inclosed within aponeurotic sheaths the long muscles of the back and the quadratus lumborum muscles.

The torso of the child* is not worth describing; it has no proper forms. The infant retains many of the foetal forms; I have already explained that such shapes are always unpleasing. The navel is in the middle of the body; the vertebral column is straight or curved forwards—a form connected with the law of unity, and not produced by the position of the child in the womb. As the child grows, the chest becomes developed; still the head is too large. By and bye, with years, the youth appears to be composed of limbs, so greatly do they, especially the lower, preponderate over the torso. At puberty the fine forms appear in man and woman, especially in woman.

The degradation of the torso in old age need not be dwelt on. It is enough to say that the stringy muscles and tendons, with even the outline of the hideous skeleton, may be traced through the wrinkled skin. The vertebral column bends forwards, wrinkles and folds of skin appear everywhere. Of the decoloration

* See Figure, p. 54.

I do not speak as coming immediately within the observation of the artist, and not to be *described* in words.



Muscles of the Back of the Trunk.

The annexed woodcut, showing a deep dissection of the back of the trunk, displays to the student certain of those muscles which assist so materially in giving beauty to the back, so long as they are covered by a finely-developed envelope, but which when seen in their naked deformity, wasted by sickness or thinned by age, destroy at once the beauty of that region which all

artists agree to consider as the finest part of the frame. *a* and *b* point to the skeleton forms of the back of the skull; *c*, the levator of the angle of the scapula;* *d*, the *scaleni* muscles; *f*, the *supra-spinatus*; *g*, *i*, *h*, the *infra-spinatus* and *teres minor*; *k*, *teres major*; *l*, top of the *triceps*; *e m*, *rhomboideus major* and *minor*; *o*, portion of the *serratus magnus*; *n*, *intercostal muscle* and spaces; *q*, *cartilages* of the *false ribs*; *p*, *internal oblique muscle* of the *abdomen*.

The description of the trunk just offered refers, as I have already explained, mainly to the adult form of woman as seen in the *Venus*; nevertheless, there are some points in the history of the torso to which I may advert in the chapter describing the *Venus* of the Museum. I refer especially to the two transverse abdominal folds peculiar to the female form, and which do not or ought not to exist in man, and to the masking of the generative system in the finely-formed torso, though quite undraped. In the *Venus* there is not a spot to be found indicating the presence of any internal organ or cavity. The contours and flexuous undulations of the torso in woman are of surpassing beauty. The chest is shorter than in man, and of a form entirely different. The waist is placed where man's is not, but the reverse. In man the waist is low; in woman it is high, commencing at the fifth rib and extending to the eighth and ninth. In man it commences with the last rib and extends to the haunches. Nothing in the anatomy of the human frame has been more mistaken than the fine form of the waist in woman.

* I ought to have mentioned that the artist has represented the skeleton forms only on the right side, but that the letters really refer to the left side of the figure, on which the muscles are fully represented.

The breadth of the haunches is remarkable in woman, and is or ought to be much wider than the shoulders. Nevertheless, it is not on bulk that the beauty of the haunches in woman depends, but on their forms and proportions. The overheated imaginations of some French artists have led them into this error. A comparison of a modern female figure, called the Academy Figure, with the statue of the Venus, will convince any person of taste that exaggerated forms even here do not constitute the perfect and the beautiful.

Lastly, it is in woman that the subcutaneous cellular fascia longest retains, sometimes for life, that adipose tissue which in her, as in youth, so effectually conceals the emblems of decay, of dissolution, that is, the appearance of the interior anatomy. But it is also an emblem of youth: thus at all points is woman armed by Nature with seductive forms, which she has totally denied the male figure. Of the movements of the torso I need say little; they depend mainly on the mobility of the vertebral column. All exaggeration of the muscular forms of the torso ought to be carefully avoided. It was, no doubt, a great error in Michael Angelo to do this. Had he seen the Elgin Marbles he never could have fallen into this error, which he himself discovered, it is said, when too late.

CHAPTER V.

EXTERNAL FORMS OF THE THORACIC OR SUPERIOR
EXTREMITIES.

Explanation of the Woodcut.—*a*, The scapula and collar-bone.

b, Outline of the deltoid.

c, Angle of the deltoid, where the muscle becoming tendinous is strongly and extensively attached to the humerus. This muscle, the deltoid, is the great abductor and elevator of the arm; when paralysed, the arm cannot be raised or abducted. But it seldom or ever shows itself very fleshy in woman.

d Marks the aponeurotic portion of the deltoid, which will be best seen in the subsequent woodcut.

e e, Masses of the extensor and flexor muscles, forming the hollow of the bend of the elbow, and giving rise to depressions, in connection with the condyles of the humerus.

f, Semi-flat surface of the forearm.

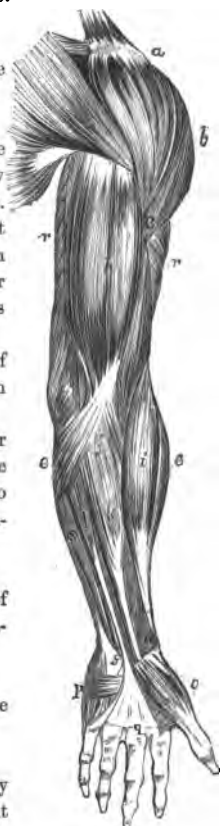
g, Groove formed by the tendons of the great palmar (flexor radialis of anatomists) and long palmar muscles.

n, Extremity of the radius bone.

o, Thenar eminence or ball of the thumb.

p, Hypothenar eminence.

These fleshy eminences are peculiarly human, and when large, as they ought



Superficial Muscles of
the Arm—front view.

to be in the fine hand, add greatly to its beauty. They are, in fact, human characteristics.

g, The depressions and elevations in the palm of the hand, caused by the aponeurotic slips in which the palmar aponeurosis terminates.

THE shoulder forms the root or commencement of the thoracic extremity. It is rounded and prominent; there is first a slight elevation, caused by the scapula and collar-bone, *a*; next follow the outlines of the deltoid, *b*, but little marked in woman; then the deltoid angle, *c*, to be seen only in muscular persons. The half-flat surface to be seen on the back of the shoulder is caused by the aponeurotic portion of the deltoid.

In the arm, properly so-called, there is the oval relief formed by the biceps muscle, *h*; but this is not well marked in the fine arm, in which the brachialis muscle is also fully developed. The depression, inferiorly, is caused by the tendon of the biceps muscle; the depression at the bend of the elbow, *e e*, is formed by the large muscular masses connected with the outer and inner condyles of the humerus and with the shaft of that bone.

A half-flat surface on the anterior surface of the forearm, *f*, follows the depression at the bend of the elbow. In it, in the coarsely-formed arm, at *g*, may be observed the outline of two tendons limiting a shallow groove. The external cord is formed by the tendon of the great palmar muscle; the inner, by that of the long palmar. These tendons divide the forearm, as it were, into two parts. At the lower part of the forearm is seen the prominence formed by the styloid process of the radius, *n*; the tendon of the flexor carpi ulnaris, *m*, limits the groove, *h h*, internally.

In the fine arm of woman, the superficial veins of the forearm, as they lie imbedded in the superficial fascia, are scarcely to be observed; but in other persons they show themselves under many varieties of arrangement.

A slight fold marks the bend of the wrist-joint. The fusiform tuberosity, *c c*, is rather to be felt than seen. There is a slight depression at the commencement of the palmar region. A fleshy mass, forming the ball of the thumb, *l l*, is called by anatomists the thenar eminence, the opposing one, *R R*, formed chiefly by the muscles acting on the little finger, is called the hypothenar eminence. These eminences assist in forming the hollow of the hand, and are peculiarly human in their character.

In the hollow of the hand, almost immediately below the integuments, is the palmar aponeurosis, a triangular-shaped membrane of great strength, and unyielding. It terminates by fine slips running towards the fingers; these bind down the soft parts, giving rise to slight grooves and depressions, *m m*, at the forepart of the palm of the hand.

The lines and furrows in the palm of the hand, *n n*, are not formed by muscular action; they vary in different persons, and on this variation was based the pseudo science of palmistry, which occupied so much of the attention of the ancients. The Gipsy race practise the art to this day. We shall find that the human hand has its philosophy, unknown alike to the mystic and to the utilitarian; the knowledge of this philosophy is due to M. Arpetigny.

"At the base of each finger there are two articular folds, with the exception of the index, which has but one; the fold at the thumb turns towards the upper

part, disappearing towards the radial side of the hand; the four others, with the cutaneous and sharp folds placed between the base of the fingers, form a festooned arch, the external extremity of which descends lower than the external."* The first articulation of the phalanges has also its double articular fold, opposed to each other by their concave sides; and finally, the four last fingers have a fold corresponding to the last joint. These articular folds or grooves are not placed on the same line; the groove of one finger is hollowed out opposite to the swelling of the next finger. The fold of the thumb is nearly on a level with the lower end of the first portion of the figure (see page 50), formed by the palmar grooves. The first groove of the index corresponds to the extremity of the thumb; the second to the middle of the second phalanx of the medius, the two folds of which are situated, the first opposite the middle part of the second phalanx of the ring finger, the second opposite to the pulp of the same finger. The folds of this last, the ring finger, divide almost exactly the two first phalanges of the medius; those of the little finger are both below the first phalangean articulations of the ring finger. These arrangements vary, no doubt, but never widely from that I have pointed out.

These minute directions as to some mechanical details in respect of the folds and proportions of the fingers I copy from the excellent work of M. Fau. To many they may appear trifling and unimportant, but with this opinion I do not altogether agree. It is true that it is to the form and proportions of the various

* M. Fau has taken the trouble to mention these and other details, which at times may safely be left to the artist himself.

parts of the hand that the artist should devote most of his attention; these considerations, no doubt, M. Fau and most others have overlooked. I shall give them every consideration in a subsequent chapter of the work; in this I mean to occupy myself chiefly with detail.

On the palmar side of the fingers may be observed, in the healthy, finely-formed hand, rounded eminences, separated from each other by the articular grooves; the last of these is formed by the pulp of the fingers; it is also the most prominent.

An interdigital cutaneous fold exists between all the fingers to a certain extent, varying in different persons; it is widest and largest between the thumb and the index. The import of all these structures I have alluded to in various parts of this work.

In the annexed woodcut the letters *rr* are placed on the triceps extensor and its tendon; *t*, the ancon process. This process is a portion of the ulna or cubit bone, as it was called by the ancients. In the finely-formed arm, whether male or female, it forms, like so many other osseous processes in the body, a beautiful depression. Imbedded in the superficial fascia covering this process, towards its



Muscles of the Arms
—back view.

lower and more projecting part, where the bone comes more immediately, as it were, to approach the integuments, there is found in most persons a little bag or bursa, as it is called by anatomists, containing a fine animal oil. This bag is a portion of an anti-friction apparatus placed between the integuments and the deep aponeurosis and periosteum, immediately investing the bone. It protects equally the skin and the bone from the effects of friction, and it is the presence of this bursa which enables man to rest so easily and for such a length of time upon the point of the elbow. It may be right to mention here that a similar anti-friction apparatus, that is, a synovial bursa, lies imbedded in the superficial fascia, stretched over the rotula or patella, and another on the outer side of each malleolus externus. Thus man rests with ease also on the knee-joint, without injury to the integument or bone; and in the oriental fashion of sitting on the divan with the limbs crossed, the bursæ over the malleoli protect these parts from all injury by pressure.

To return to the ancon process, we find that, in the emaciated or congenitally ill-formed arm, the process, instead of giving rise to a beautiful depression, forms a hideous projection, at all times displeasing to the eye. *u* points to a facette or plane surface, as the case may be, between the process and the inner condyle of the humerus—there is a well-marked cavity on the outer side of the ancon process; *v*, the anconeus muscle—grooves are formed by the aponeurotic partitions of the muscles; *w*, extensor carpi ulnaris; *x*, the ulna; *y*, the long abductor and extensors of the thumb; *z*, the tendons of the extensors; *x*, the head of the ulna; *n*, the lower end of the radius; *l l*,

the metacarpal phalangeal articulations; *g*, groove formed by the brachialis flexor; *r r*, the triceps.

On the back of the arm, forearm, and hand, the artist should first observe the elevated and rounded surface, afterwards followed by a plain surface, extending together from the lower edge of the deltoid to the elbow. These surfaces are formed by the shape of the triceps extensor and its tendon, *r r*. The ancon process, *t*, forms a projection when the arm is flexed, and a cavity when the arm is extended. Between this process and the inner condyle of the humerus is sometimes a plane surface, sometimes a facette, *u*.

A well-marked cavity exists on the outer side of the ancon process; below is the triangular plane of the anconeus muscle. Near this is a groove, *v*, and lower down still, on the radial side, are other grooves, caused by the aponeurotic partitions of the muscles. The extensor carpi ulnaris, *w*, forms all along the surface of the forearm a well-marked eminence. The ulna, *x*, forms the bottom of an elongated groove, caused by these muscular projections. The long abductor and extensors of the thumb, *y*, give rise to an elevation and corresponding depression on the radial side of the forearm. The tendons of the extensors, *z*, are seen only in thin persons, they are never visible in the finely-formed arm.

The two eminences seen on the back of the wrist are the head of the ulna, *x*, and the lower end of the radius, *n*. I speak not of the tendons seen in the back of the hands of the emaciated and ill-formed. At the metacarpal phalangeal articulations, *ll*, the rounded ends of the metacarpal bones form dimple-like cavities in the beautiful female hand. In the emaciated and ill-

formed, they give rise to a series of projections, seen readily through the integuments. The integuments over these elevations are furrowed with many folds or wrinkles, crossing each other in all directions. The articular folds on the back of the fingers are not placed on the same level with the anterior folds, but below and above them. On the last phalanges there are the nails, presenting many forms, but beautiful only when resembling the antique nail. The nail owes its beauty to its form; ill-formed nails destroy the appearance of the finest hands. *Factus ad unguem* was the pithy phrase of the Roman poet, to express, no doubt, what was beautiful and perfect. Woman's nails are generally the finest, so also is her hand an index of her tenderer nature, of her more exquisite form, of her softer, more beautiful, more perfect structure.

On the external side of the arm there is a groove, formed by the brachialis flexor and triceps. On the inner side of the arm there is also a groove, extending from the axilla as far as the lower third of the limb; it is caused by the biceps and triceps muscles. The inner condyle of the humerus forms, in the fine arm, a slight elevation or prominence; a shallow depression follows it. Lower down there is the styloid process of the ulna and a portion of the head of the bone; these give rise to two small eminences, separated by a very shallow groove.

In childhood the subcutaneous fascia, with its adipose cushion, the emblem of youth, conceals all muscular and osseous forms; the ancon gives rise to a facette; small dimples mark the articulations; when the arm hangs extended by the side, the elbow reaches to the level of the base of the chest; the hand to a little below the hip-joint. With years these forms

alter, and the limb is often found meagre and stringy just before puberty. At that period, or shortly after, the arm is finest in woman, rounded, smooth, and taper. It is the same in man; but in him the adipose cushion begins often to disappear at twenty or twenty-one, exposing the muscular outlines and destroying all beauty. In woman, on the contrary, the beauty of the arm often continues to fifty or even sixty.

In old age, in consequence of the thinning of the integuments, and more especially the disappearance of the adipose cellular cushion of beauty and of youth, the wasting of the muscles, the arms and the limbs generally become frightful anatomical displays, exciting merely pity and horror; the veins swell, showing themselves everywhere; even the nails would seem to alter their form.

A single additional remark as to the fine form of woman's arm, and of the athlete.

In woman, the proportions of all the parts of the upper extremities are finer than in man, and they are placed more gracefully on the trunk. The fingers are taper, as well as the entire arm. But the arm of the young athlete is also beautiful, though not so much so as that of woman; it is taper, round, full, and smooth; no angles appear until later in life; it is articulated to the torso somewhat differently than in other men. But in order that the arms be fine, whether in man or woman, it is necessary that the deep muscles be fully developed, and that the long muscles of the forearm should continue fleshy to near the wrist. The same remark, we shall find, applies to the lower limbs. Any remarks on the varying forms the arms assume during action, seem to me uncalled-for here; but it will be necessary for the student to study these varying forms in the living model.

CHAPTER VI.

EXTERNAL FORMS OF THE LIMBS, OR PELVIC
EXTREMITIES.

THE hip-joint and haunch connecting the limb to the torso have been already described; we have therefore only to speak of the thigh, the leg, and the foot.

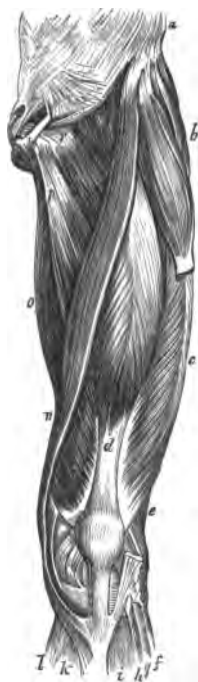
In the front of the thigh* the rectus muscle forms a fine relief, aided by the convexity of the thigh-bone. There is a slight angular depression above, indicating a hollow space between the tensor and sartorius muscle. A plane surface follows the relief of the sartorius as far as the rotula; the outline of the sartorius, *n*, is slightly perceptible. Outside the thigh there is a large convex surface, terminating below in a deep depression; both are due to the rectus muscle. Anteriorly and above, just below the groin, there is a smooth surface, corresponding to deep muscles. In the fine limb of woman the thighs are fleshy and rounded, and they meet or touch each other above. In man the thighs are flattened, and they do not touch when brought together. The adductors, *r*, *p*, *o*, are strong and fleshy in woman; so also is the vastus internus. The thigh slopes gently inwards in every well-formed limb, male or female, but most in woman. Straight thighs are an unsightly deformity; the thighs of the foetus and of some quadrupeds are straight.

The prominence of the patella must be espe-

* See woodcut and explanation on the opposite page.

cially noted; the tendon, *d*, attaching it to the tibia gives rise to a smooth triangular prominence with \times depressions on either side. The forms of these surfaces alter with the movements of the limb, and require to be carefully studied. The influence of the condyles of the femur is chiefly remarkable during flexion of the leg or the thigh.

It is usual to say that the form of the leg is nearly prismatic.* It has three surfaces, but some speak of it as divided into four. A striking feature in the limb is the crest of the tibia, and the smooth and plane surface of bone, extending throughout nearly the whole extent of the leg, and terminating inferiorly in the malleolus internus, or inner ankle, as it is usually called; on the outer side of this, the tibialis anticus, *k i*, *h l*, the long extensor of the great toe, the common extensor, and a supplementary extensor called the peroneus tertius or alter, form



Explanation of the Woodcut.—*a*, Crest of the ilium; *s*, psoas and iliacus muscles; *r*, pectineus; *p*, adductor longus; *o*, gracilis; *n*, sartorius; *d*, tendon of the rectus muscle; adjoining may be seen the united tendons of the triceps extensor cruris, the vasti and crureus of some anatomists; *c*, vastus externus; *e*, termination of the biceps; *l*, *k*, *i*, *h*, *g*, *f*, refer to the origins of the muscles of the leg.

* For woodcut of the leg, seen anteriorly and externally, see next page.



elevations and slight depressions or grooves, as the case may be; behind these is the relief of the gemelli and soleus, *d e, f, g*,—forms never strongly marked in the finely-formed limbs of woman.

The back or dorsum of the foot should be convex or arched. In the fine foot, neither tendons nor muscles nor bones nor ligaments are visible. It is only when the adipose tissue is leaving the integuments that these anatomical elements begin to show themselves. The most prominent part of the back of the foot corresponds to the first and second wedge-shaped bones and to their articulations with the first metatarsal. The toes

Explanation of the Woodcut.—Superficial muscles of the leg and foot, outer side; the integuments, superficial fascia, and aponeurosis have been removed. *c b*, Lower portion of the triceps or quadriceps extensor of the leg; *a*, biceps flexor cruris; *d*, gastrocnemii and soleus, or triceps extensor of the foot; *e, f, g*, tendo-Achilles; *k*, tibialis anticus; *i, h, l*, tendons of this muscle and of the adjoining, namely, the extensor proprius pollicis pedis and extensor communis; *m*, anterior tarsal ligament or retinaculum, binding down and retaining these tendons in their places; *p, o, n*, point to the attachments of an extensor muscle, super-added in some limbs to the common extensor of the toes; to the tendons of the peroneal muscles, and to the abductor minimi digiti pedis.

enlarge towards their extremities ; the second should be the longest ; the third, fourth, and fifth diminish gradually ; the extremity of the little toe reaches to the last joint but one of the second toe. The superficial veins should not be seen in the young limb ; they are the saphenæ and their branches.

To conclude : there is a groove in the thigh, between the vastus externus, *e*, and flexor muscles, *p*. This is scarcely perceptible in woman ; in the emaciated limb it is most striking. Here the aponeurosis dips down to the bone, forming distinct sheaths for the neighbouring muscles. There are depressions and elevations on the outer side of the knee, explained by the form of the vastus externus, *e*, by the tendon of the biceps *p*, by the rotula, and by the head of the fibula on the outer side of the leg ; the fibula, *k*, forms a triangular osseous plane, terminating in the malleolus externus. In the finely-formed limb the peroneal muscles should be fully developed below.

To enable the student the better to comprehend



The woodcut represents the back of the foot and a portion of the leg adjoining. *e*, *d*, *c*, tibialis anticus and extensor pollicis pedis cut across ; *a*, peroneal muscles and fibula ; *f*, anterior annular ligament of the tarsus ; *m* points to the origin of the extensor brevis communis ; *g*, adductor pollicis pedis ; *l*, abductor minimi digiti ; *h* *k*, the retinaculum, or ligamentous sheath, binding down and retaining the tendons in their places.

these forms, I have thought it right to place before him a woodcut representing a dissection of the super-



ficial muscles of the haunch and thigh, including the external side of the knee-joint. The integuments and aponeurosis have been removed, so as to display fully the causes of forms in these regions, namely the proximity of bone, the presence of tendons, and the swellings of the muscular masses, whether in action or in repose. *a*, the oblique muscle of the abdomen; *b*, the head of the sartorius; *c*, the tensor of the aponeurosis; *r*, the gluteus medius; *q*, gluteus maximus; *d f*, the extensor muscles of the leg; *e*, the vastus externus; *p*, biceps flexor of the leg; *g*, short head of the flexor; *o n*, inner hamstring muscles; *h i*, top of the tibialis anticus and common extensor of the toes; *k*, fibula; *l m*, head of the triceps extensor of the foot.

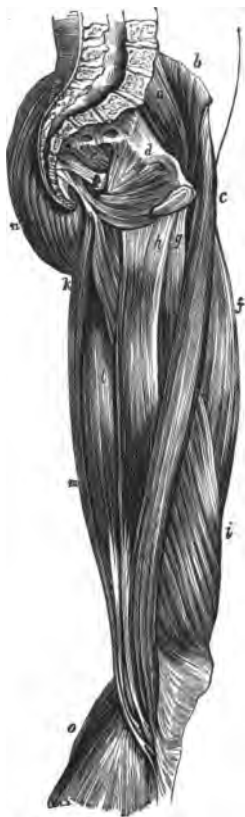
The artistic student would do well to sketch the forms seen in this woodcut frequently; to compare them with the plaster casts before him, with the beautiful limbs of the Elgin Marbles and other antique

statues; above all, with the living figure in action and in repose, By these studies he will learn to draw correctly a portion of the frame, which in many works of art are required to be shown but slightly draped, or even nude.

For the same reasons I have thought it right to call the attention of the student in an especial manner to the accompanying woodcut, which will explain to the student the anatomy of the superficial muscles of the inner side of the thigh, the causes of forms in this important artistic region. In this also he cannot too frequently study the remains of antiquity, and especially the Elgin Marbles.

The woodcut represents the inner side of the left thigh and knee; the right side of the pelvis and the viscera have been removed. The upper or pelvic section is an anatomical view, the woodcut being originally intended for another work I am about to publish. The artist need not therefore attend to this segment.

Description of the Woodcut.—*a*, the psoas magnus muscle; *b*, the iliacus; *d* is



placed on the brim of the pelvis; *e*, the pyramidalis muscle; *n*, the gluteus maximus; *c*, the sartorius; *f*, the rectus; *i*, the vastus internus; *h*, the gracilis; *l m*, the semi-membranosus and tendinosus, forming the inner muscles of the hamstrings; *o* points to the top of the fleshy calf of the leg.

The anatomy and the forms it produces are well displayed in the annexed woodcut, representing the inner side of the leg and foot.



Description of the Woodcut.—*a*, vastus internus; *e*, *d*, *c*, *b*, muscles of the inner hamstrings and sartorius cut across; *f*, inner head of the triceps extensor of the foot; *n*, tibialis anticus, as it projects in the fleshy limb beyond the crest of the tibia; *g*, *h*, *i*, inner surface of the tibia, when it becomes subcutaneous throughout its whole length; *l*, anterior retinaculum of the tarsus; *m*, sole of the foot and abductor muscle of the great toe.

The student is reminded that these drawings are made from the male limbs, muscular and fleshy, strongly-marked, well-proportioned, but devoid of beauty. For this he must look to the limbs of the Venus and of the living woman resembling her.

It is in the lower part of the leg, between the calf and the ankle-joint, that the English (Saxon) limb chiefly falls off. The limb ought to continue round, and taper, and full to the ankle. This falling off of the limb above the ankle is a peculiarity of the race, and not an accidental deformity, as Sir Charles Bell supposed, occasioned by the habit of wearing heavy shoes. In the Celtic race the calf of the leg is strong and well formed; yet the majority of the race wear the heavy *sabot*. Sir Charles's error did not stop here. He ascribed the strong calf often seen in the leg of the Parisian (Celtic) women to there being no side pavement in Paris, and he called such legs handsome! But the strength of the calf of the leg in French women is not due to the pavement, but to the race to which they belong; and a strong calf in the leg of any woman is a *deformity*, and not a beauty. Thus from one false principle—the idea that the form of the human body may be permanently altered by external circumstances—flowed many errors of detail.

The tuberosity of the calcaneum projects slightly, but displays no osseous configuration. Slight depressions and elevations of great beauty may be seen around the malleoli, caused by tendons and muscles, and easily understood. The external side of the foot should be rounded, the inner nearly straight. Nothing on the sole of the foot indicates the complex anatomical structures situated above the integuments and the plantar aponeurosis; the great strength of the epidermis and integuments generally assist also in concealing the anatomy. The submalleolar groove runs into the bottom of the foot, with which it is indeed continuous.

In the infant, the limbs, never worth drawing nor

sculpturing, display a want of proportions and forms; they are round and dumpy. A deep fold appears in the middle of the thigh, another on a level with the knee. In Britain, at least, the foot, in developing itself, rapidly becomes deformed, showing strongly-marked anatomical forms at the age of eight or nine. The degradation of forms caused by age need not be described; the limbs look as if they had been dissected.

The foot is, proportionally to the whole stature, smaller in woman than in man. The foot of the Venus resembles that of the child. The hands and feet of children are generally beautiful, and the fine woman grows up with these forms; in her there is development without degradation of forms.

To catch the varying forms of the limbs during action, draw from the nude figure; study deeply the Elgin Marbles, and labour to attain the inspiration which guided that unequalled chisel. See with what grandeur of mind the immortal ancient has sculptured the dead and the dying; strong men engaged in mortal combat, or reposing peacefully in groves and temples, without betraying a single burlesque or grotesque attitude; nothing vulgar, nothing forced, nothing theatrical, nothing hyperbolical, in these noble figures—all is dignity, and Nature in her most majestic forms.

The late Mr. Haydon was once asked by a spruce, dapper Cockney, what there was in the Elgin Marbles to make them so much admired. Thrice happy Cockney, whom Nature had formed without taste, but had supplied with a superabundant share of self-conceit! What use is there in paying £30,000 for such mutilated fragments as these, without a meaning? Have we not St. Paul's and Westminster Abbey,

and the Fountains in Trafalgar Square, and the Iron Duke, and the Monument, and the British Lion over Northumberland House? No doubt you have, and I know that you believe modern, brick-built London to surpass Rome in the Augustan age! You not only believe it, but you are sure of it; and in the filth and buffoonery of Wapping and old curiosity-shops you fancy there is romance and sentiment. Look abroad, and disabuse your mind, if you can, of the grossest of all delusions.

PART III.

CHAPTER I.

OBJECT AND AIM OF ART—MATERIALS AT THE COMMAND OF THE STUDENT—AN ANALYSIS OF BEAUTY, AND A THEORY OF THE BEAUTIFUL.

It is not enough that the artist be enabled, by mechanical dexterity and anatomical knowledge, to represent in plaster, in marble, or on canvas, Nature's external manifestations; these qualities, however excellent, however necessary they be to complete the artist, do not in themselves constitute the artist; they form the statuary and the painter, but not the artist. What the common and the vulgar mind takes for the end and the consummation of art, is only the handmaid, the workman's share in the work, the mechanic's part. The real object the artist must ever have in view is to aim at the mind of the spectator. To explain my views on this point, I have thought it advisable to add this concluding part, comprising an outline of an analysis of beauty, to the Manual; it contains a brief description of the materials which it is presumed the young artist has access to in this and in other countries, and a theory of beauty which I have ventured to call new. By this expression I do not mean that the practical results of the theory were unknown to the great masters of antiquity; Homer knew them as well as he, immortal through his works, yet unknown, who carved the Apollo and the Medi-

cean Venus; but if they knew the theory they have left no account of it. This theory I beg to offer to the candid examination of artists and to men of taste of all countries, requesting them to test its truth, by applying it to the works of the great masters and others. I have myself often done so, and do not fear the result.

The misdirection of the studies of the artist dates at least from the time of Michael Angelo; it was then that the anatomy of the schools, I mean the medical schools, took the place of the living anatomy—the only instruction of real utility to the artist.

The question has been asked by men gifted with exquisite taste, “what would have been the condition of art *now*, had not the antique marbles been disinterred?” That it would have been most deplorable, all must admit. But had the sketch-book of Leonardo been published, it would at any time have revolutionised art, checked at once and for ever the false direction given to art by Michael Angelo, put Raphael and his school in their proper place, removed pedantry and false philosophy from art, closed the era of the most disgusting of all evils—*conventional*ity, *national*ity in art. Whilst I write this, I hear of Raphaelites and pre-Raphaelites. Leonardo preceded Raphael: go back to Leonardo and Phidias; go back to Nature.

That the artist ought also to be acquainted with the anatomy of the dead, at least to a certain extent, that he ought to know how to combine science with art, I admit. Let him avail himself of all legitimate resources of his art, learn how to eschew the errors of those who tell him or who have told him that, on the one hand, he may have ready-made physiognomies

suited to all occasions, and, on the other, that from the lifeless and dissected corse he may sketch with safety: copy dead forms for living ones; forms which Nature never intended should be seen; forms which she has, in the high tide of beauty and youth, most carefully concealed from human sight. To enable the artist, in fact, to escape from a misdirection, which is sure deeply and fatally to influence all his future aims and works, is the object of this work.

M. Gerdy, a distinguished French surgeon and lecturer on anatomy, seems to me to have been the first to apply the rigorous method of anatomical description to statuary, painting, and generally to the works of the great masters, ancient and modern. The notes he has appended to his work contain valuable critiques on most works of art to be found in the museums of Paris; and the student visiting that capital for the purposes of study and improvement could not do better than consult his work. On the other hand, it is right to observe that, in the composition of his single volume (for it is incomplete), the author has never forgotten or overcome his anatomical and surgical tendencies; and on this account I have not been able to profit by his labours in the composition of the present Manual. A descriptive manual of external forms, to be of use to the artistic student, must be based on artistic views. In this country, on the other hand, those who have written on the subject of art have either indulged in unprofitable reveries or advanced theories unintelligible or easily refutable. It has not fared better with the artistic student in Germany. We have the assurance of the illustrious Cornelius and his colleagues that neither the literature nor philosophic writings of his countrymen had ever

benefited arts or artists in the slightest degree. No practical view nor theory worthy of the name has ever emanated from the German press.

Though differing much from the views of M. Quatremère de Quincy, I highly esteem his volume on the Fine Arts, and beg to recommend its perusal to the student. Of purely anatomical works and of lectures and dissections addressed to medical and surgical students, I shall make but a single remark. Let the artistic student avoid carefully all such works and lecture-rooms.

The celebrated Camper, at once the anatomist and artist, but much more of the latter than the former, the rival and cotemporary of Albinus, objected to the hard anatomical engravings of the celebrated Dutch myologist, that his representations of the muscles of the human body were too hard and inartistic-like—to which he might have added, neither death-like nor life-like. Albinus's reply was that he intended them for anatomists and not for artists. But the truth is that they represent rather dissected muscles than such as are found in dead bodies. Mr. John Bell, a man of the highest genius and a most expert surgeon—the most expert surgeon, perhaps, that ever lived—published a small quarto volume on the bones, muscles, and joints, with etchings and engravings of those organs, remarkable for their artistic spirit; and the work, though never held in any repute by anatomists, is much esteemed by artists. But the work, like all others of its era, labours under this radical defect, that by representing the dissected muscles as if they were external forms, and not merely the causes of some of these forms, it represents that which is never seen in life. With Albinus, all that concealed the muscles was

superfluous. He cared nothing for external forms; the object of his study being the precise attachment of muscles, their tendons, and their shapes when rigorously dissected. Now to the artist the representation of the external, and of the internal as modified by the external, is everything: it is otherwise with the scientific man, who pursues knowledge for the sake of knowledge, who seeks to discover in the interior the secrets of the organization, the mysterious laws of transcendentalism and the theory of life.* By these remarks I do not wish to dissuade the student from a deep study of anatomy, but simply to point out to him the nature of the path on which he then treads. Da Vinci trod it, and escaped with his taste uninfluenced, but it may not so happen to others. In my younger days, influenced by the great names who advocated this view, I fancied for a brief space that anatomy, as then taught to the surgeon, was essential to the artist; but deep reflection, mature years, and a wider experience, added to a natural feeling for the beautiful as contrasted with the conventional, taught me the contrary. But even when a student, I felt amazed at the application of the term beautiful to these internal shapes; shapes without form or colour, frightful, hideous, shocking to behold. The true relation of the interior to the exterior has been shown, I hope, in this Manual.

In respect of other materials at the command of the artistic student, I may observe that hard anatomical

* See a work just published, entitled "Great Artists and Great Anatomists; a Biographical and Philosophical Study," by R. Knox: J. Van Voorst, London, 1852. In that work I have explained the relation of descriptive anatomy to science, literature, and art.

drawings ought uniformly to be avoided. The employment of the lay figure by the artist has led to sad results in Britain. Sketches may and perhaps must be made from plaster casts, but such casts and the drawings made from them ought in every instance to be compared with the living figure or with the antique. Some galleries of art are open to the student; the book of Nature is always patent to those who know how to read it. What we admire in such masterpieces as those of Teniers is the absolute perfection of the work. In Nature's compositions there is a perfection which genius alone can perceive and taste appreciate.

The student of art will find the absolutely beautiful in the antique. There is, as I have already explained, no such thing as "ideal beauty." In the British Museum there are but a few marbles from which the student may safely draw. Were the Elgin Marbles perfect, the entire world could not match such a work; for even in their present sadly mutilated forms, what transcendent beauty do they not disclose! What figure can excel the Ilyssus and the Theseus!

A deep study of the antique will at all times enable the student to modify the endless varieties of form we meet with in mankind, giving them a tendency towards the perfect. It was happily remarked by Plautus—for even at so early a period had a theory of the ideal made its way into Rome—that the perfect was nowhere and yet was everywhere to be found. It is even so: for in Nature's manifestations you must learn to read her intentions, learning to trace her great scheme of perfect form; that form so often aimed at and so seldom attained. Cicero, though a lawyer, a scholastic logician, and a utilitarian, valued the Fine Arts, but

was no judge of them. His taste was bad; yet he sagaciously thought that a high excellence in art, or a possession at least of the noble productions of genius, was essential to the character of every nation pretending to be great. So thought the immortal historian of the Decline and Fall of the Roman Empire. In a few expressive words, indicative at once of his high taste and the deep penetration of his intellect, he sums up at once his estimate of the Roman empire in the time of Diocletian, the true nature of art, and its true relation to mankind. "We are informed," observes Mr. Gibbon, "by a recent judicious traveller, that the monuments of architecture are not less expressive of the decline of the arts than of the greatness of the Roman empire in the time of Diocletian. If such was indeed the state of architecture, we must naturally believe that painting and sculpture had experienced a still more sensible decay. The practice of architecture is directed by a few general and even mechanical rules. But sculpture and, above all, painting propose to themselves the imitation, not only of the forms of Nature but of the passions of the human mind. In these sublime arts the dexterity of the hand is of little avail, unless it is animated and guided by the most correct taste and observation."

This single passage is worth a thousand Academy lectures, and would alone have immortalized its author. I find that in the schools there prevails an idea or theory of the *choice of forms*; this theory is wholly at fault. It gives rise to idealized, that is, imaginary forms, which exist not in Nature, which the human eye therefore never saw, and which are rejected alike by human sense, feeling, and passion. It is with the absolutely real, with Nature's manifestations as they now really exist, that the minds of men harmonize,

and with nothing above, below, or beyond. Man's imaginings are generally frightful, often hideous, always unnatural.

Of the various materials at the command of the artist, plaster models of the extremities (arms and limbs) from the living and the dead are also in use in the schools. Of the living I need say nothing. In a cast of the dissected arm I have examined, an attempt has been made to preserve the muscles in their place, but it has not succeeded. The biceps, for example, is shown as if *contracted* in the dead and dissected arm.

In conclusion: study the living form when unobserved. The artist must learn to draw rapidly, catching the ever-shifting expressions of the face and limbs and torso. The usually received opinions about high and low art are altogether erroneous.

The unquestioned excellence of the great masters was not owing to a knowledge of anatomy, although many of them knew these dead shapes, and knew how to profit by a knowledge of them. Study then in the right direction, but never make any display of your knowledge of the dead-room and its contents. Remember that your great object is life and animated beings, and not "the emblems of mortality." That the surface is much influenced by the interior need not be doubted; the hollows and grooves of living bodies are formed by the ridges and prominences of the skeleton; superficial and deep muscles affect that surface; aponeurosis plays its part; a network of veins affects the colour of the skin. All this it may be well to know. It is not science which is at fault, for without science, abstract science, the "truth in art" could never have been discovered. It is the misapplication of science which has injured art. Excepting in violent motions, the muscular system is not strongly portrayed by Nature.

Why, therefore, should you exaggerate? Even in strong men this is the case. Certain deep muscles exert, no doubt, the highest influence over the external form: among these I have already enumerated the supra spinatus, the brachialis flexor, the deep flexors of the forearm, and the soleus. In respect of attitudes, study the living movements as regulated by the joints, and all their possible combinations. Da Vinci did so; a desire to know perfectly all possible combinations of living attitudes may have led to his great anatomical studies. As in man so in other animals. A glance at the skeleton of a living serpent would have enabled the artist whose engraving I examined, to avoid committing so ludicrous an error as representing the reptile about to engage in combat with a lion, in such an attitude as to ensure fracture in every part of its spine.

The ancient masters never exaggerated, as may be proved by those mutilated but immortal fragments which this country and civilized Europe owe to the late Lord Elgin. These fragments are now placed in the British Museum in London, and are known by the name of the Elgin Marbles. To a deep study of some of these works I strongly recommend the artist.

These statues once decorated the Parthenon, and were rescued from destruction by the late Lord Elgin, from whom they were purchased by the nation. As a whole, they must have stood unequalled in the history of art. Of the intrinsic value of these works I require to say nothing here; their mutilated condition prevents the possibility of guessing at their value. In drawing from them, I venture to recommend the student not to draw those surfaces which have been greatly injured by time and accident.

CHAPTER II.

THE FINE ARTS—THEORY OF THE BEAUTIFUL IN
NATURE AND IN ART.

LITERATURE, science, and art constitute unquestionably human civilization; by the actual condition of these the historian judges of the condition of all the nations and the races of men. Wealth and its usual concomitant, power, a happy social condition, commerce, manufactures, the laws observed, domestic happiness and ease, refined luxuries and rich furniture, not unknown even to the cottage, respect abroad—all these, no doubt, form a picture which many nations now present, and which might at first be mistaken for a high civilization. The future historian will correct this, and do man justice. A wealthy barbarian, ignorant of science, literature, and art, and equally despising all, is not a civilized man, call him by what name you will. His home may be a palace, but he is still a boor. Let those who intend becoming artists bear this in mind: Athens was not alone remarkable for *art*; she abounded with master-minds in all that constitutes civilization. What the modern artist has chiefly to contend with is the misdirection of art. Nationalities, based on low and selfish principles, he is apt to accept as "the universal," forgetting that genius is not peculiar to any country or race.

The artist, then, must first divest himself, should his nature admit of it, of all nationalities. Next look at

the material world as Nature made and remakes it, and as man trains and modifies it; and separating each from each, search in his own mind for the eternal and unalterable laws which bind that mind, whatever be its scope, to the external world. Thus will he discriminate the conventional from the real; the conventional in material and the conventional in mind; fashion from taste; the *beau-idéal* from the mere imaginary. His great and ultimate object is to discover beauty; in what beauty resides. But art has also other views; these will unfold themselves as we proceed. The representing the external world in marble or on canvas in such a way as to touch those connecting nervous links which bind man to that world, to call forth his feelings, and to find a response in them—this is also the aim of the artist. He alone to whom Nature has given certain qualities of mind and hand can effect this great object. An eye skilled in the perception of just and beautiful forms, and a hand to chisel them in marble—these constitute the sculptor. The painter requires this and more; a knowledge of colouring must be part and parcel of his nature. Both require grandeur and clearness of mind, in order to group or compose. But sculpture and painting are not the sole Fine Arts; this at least is the more general belief. Poetry, architecture, music, pantomime, gardening have been added to them by ingenious literary men, artists, and scholars. Let me consider here the claims these have to be esteemed and ranked among the Fine Arts.

First. Of the so-called Fine Arts, music has ever been considered one, and one of no mean consideration; but music is not a Fine Art in any sense of the term. This at least is my firm conviction, after the most

mature consideration. Giving a preference myself to the pleasure of listening to sweet sounds, placing the great composers amongst the high geniuses of mankind, admitting that in music there is a something solemn, grand, and mysterious, the purport or bearing or *theory* of which is as yet incomprehensible; feeling all this as I do most deeply, I yet cannot reckon music amongst the Fine Arts. It represents nothing in the external world; it is not material, visible, nor tangible; its signs are conventional; and between its results and the human mind there is no obvious connecting link. Associations add to its charms, but do not originate them. To the utilitarian the theory offers not a resting-point. Mysterious and unintelligible power! By what secret chord do you rivet certain minds? What is the nature of the spell by which you chain down certain human minds? Must we look for an explanation in that deep dream of Pythagoras—the harmonization of number and of sounds, of harmonic numbers; in short, as a last resource, that wide and boundless theory, which, embracing all art—the human figure, the Parthenon, the soul-enrapturing concords of Beethoven, including form itself in all its combinations, from the circle of the globe to the globular cell of life—leaves the mind alike without a compass or a rudder in the stream of science and of life?

Secondly. Architecture is not one of the Fine Arts, though nearly approaching them. The passage already quoted from "The Decline and Fall" places the question in its true bearing. It is not even an imitative art, which would bring it within the theory, otherwise faulty, of M. Quatremère de Quincy. There is nothing within the material world which it imitates. He might as well call language one of the Fine Arts.

It expresses no passions, nor sentiments, nor thoughts. But architecture is an instinctive art, based on mechanical sense, shadowing out merely one of those circumstances or results by which man differs from his fellow-man, barbarous or civilized—an index of his power, of his tyranny, of his fanaticism, of his wealth. Each race exhibits in its architectural designs its own feelings in these respects; for each race has its own style of architecture, all undeniably good. In the Gothic cathedral you see shadowed forth the Slavonian and Gothic mind; the Arabesque speaks of the Eastern and of its own race. Who can mistake the pagoda and the pyramid from Scandinavian productions? Architecture, then, has no theory; it cannot have. There are building races of men, as there are wandering races. The stories invented to explain the various orders of architecture, origin of the arch, etc., are puerilities, below the notice of literary and scientific men.

I have yet to learn that the Celtic and Saxon races have a style and form of architecture belonging to them. They seem to me to borrow from all others; and as people may borrow instruments and especially principles they do not rightly comprehend, so the modern cities of Europe, peopled by these races, present grotesque and burlesque copies of ancient buildings belonging to other races, exciting, no doubt, surprise and wonder in the loftier minds of those belonging to races on whom Nature had bestowed an architectural disposition.

What modern artists perhaps should do when occupied with imitating that portion of the external world which man has created or fashioned, is to avoid the vulgarities of Celtic or Saxon nature. The square,

unsightly, four-walled house, with a door in the middle and a window on each side, whether it stand apart or join its neighbour, the vulgar mind will repeat for ever. They are model doors, model houses; in fact, models of the mind of the race. From London to Graffkeynet, from Scandinavia to Washington, it is all the same. I have been informed that a monument is to be erected somewhere in the United States which will astonish the world. I have not the least doubt of it. When the mind works without an aim, the result must be unintelligible.

When quite a young man, I visited London at a time when there stood in Hyde Park certain Chinese bridges, pagodas, and heathen deities. I was lost in wonder. I may visit it shortly and will find, so I learn, that not far from the same locality a large conservatory or hothouse, upon the most approved model, has been erected. There is a fatality in certain countries ruinous to the arts. "A nation of shopkeepers (the phrase is not mine) constructed the workshop of the earth." In its heated atmosphere trees may live, but genius and art must decay and perish.

This glass-house or monster glazed cast-metal case is not a building. What then is it? and under what category shall we place it? It is merely a national mistake, not at all unusual with the race to which the nation belongs.

Thirdly. Pantomime is esteemed by some the humblest of the Fine Arts, and De Quincy's theory, were it true, would explain this; but this theory is not true. Neither pantomimes nor theatrical representations nor moving panoramas belong to the Fine Arts; if they require being classed at all, we should perhaps call them imitative strictly. They endeavour to

represent through the medium of the eye men alive and in action. I allude more especially to pantomime and the drama; they address the thinking mind of the spectator, not the instinctive. They are sure to fail. The poet alone can place living history before you: the tale of Helen; of Orestes and his griefs; of Desdemona. It is a tale which might be painted by the poet, requiring not the aid of scenic device. And has it not been so? Read the Homeric ballad.

Neither poetry, then, nor the drama, nor pantomime, belong to the Fine Arts. They form part and parcel of the history of the human mind, of its manifestations under various circumstances; a section of its literature. To improbable romance they lend the aid of truth; over dry and tedious history they spread a life-like covering. Before your eyes, by the magic of the Homeric song, you see and hear the hosts engage at the Scæan Gate; Agamemnon and Achilles thunder over the plain; last in his turn, the noble Hector; Astyanax; Cassandra. Nor less, immortal Shakespeare, was thy power: your Macbeth and Hamlet will outlive the nation which claims you for her son.

Poetry, then, and history, pantomime and the drama are not Fine Arts; they merely furnish materials for the artist. They must be used cautiously and judiciously. Avoid rhodomontade and caricature; they are not in nature. The artist who would draw "the blasted heath on which the Scottish chief met the weird sisters" from a stage representation I saw of this lately in London,* would deservedly be laughed to scorn by every man of taste. It was an attempt, and a very awkward one, to improve on Shakespeare; the result, as was to be expected, was

* Macready at the Princess's Theatre.

horrible burlesque. There was music, too, said to have been composed by a Mr. Locke; it was burlesque too. The artist had better not try to improve on Homer and Shakespeare.

It is a mistake to suppose that to paint low life it is necessary to resort to the burlesque, to play the buffoon whilst attempting the humorist. Teniers painted nature; Hogarth the grotesque. The theatrical world 'is not the living world, and although "all the world's a stage, and men and women merely players," in a poetic sense, it were to mislead the artist to advise him to draw from man's own handiwork, instead of from Nature herself. A Flemish pott-house scene is nature; drawn by the great Flemish masters it is no burlesque.

Poetry, then, and the drama, like history, merely furnish materials for the artist to study; and they must be studied all the more carefully that they are the work or creation, as we are pleased to term them, of man himself. When contemplated, then, by the artist, with artistic views and purposes, he must never forget that he is looking at Nature *through the mind of another*; he gazes at her as represented in a mirror held up to him by another. A picture distorted in a variety of ways may be the result, though the actor were a Garrick or a Talma, and the stage and scenery around them worthy these great names.

It pleased the government of France, a few years ago, to decorate the walls of the palace at Versailles, and the great deeds of the mighty Napoleon naturally constituted the pith and marrow of the decorations. The talent and genius of France was called out, the themes the grandest mankind had ever seen; but the result was in a great measure a failure. To portray

in a manner worthy the mighty name of him who now reposes under the dome of the Invalides, a Raphael was wanted, a Michael Angelo, a Da Vinci. No such artists now exist; as genius is of no country, so neither is it of any age.

LANDSCAPE-GARDENING.

I have already said and repeated that the artist, in representing the external world, ought or at least may, for in this he has a choice, view it, first, as fresh from Nature's hand; secondly, as trimmed and modified by human agency. Under the first head stands the landscape as Nature made it; under the second is arranged the landscape modified by works of human industry and genius, the noble domain, the Italian terrace, the champaign country alive with architectural remains, the cascades, and villas. This form of external world embraces alike the gorgeous palace and its boundless park, the ruined cathedral, the peasant's humble cot, the village church, and pleasant dell; it abounds with associations appealing to the passions and feelings of men, their fears, their loves, their dislikes.

The onward and natural progress of most races is towards what is usually termed civilization; every race modifies, to a greater or less extent, the surface of the earth, the land and the waters, as they come originally from Nature's hand. The modified landscape is then, to a certain extent, *natural* also, though modified by human agency; it appeals to the mind of man, civilized and savage, affecting each quite differently. But the strictly natural landscape untouched by man seems to affect all mankind alike, from the dapper citizen to the wandering boor; from the wealthy, bloated

master of a palace in Belgravia and the Rue St. Honoré to the untrammelled Mongol or listless Bosjeman—the child of the desert, the houseless, homeless Troglodyte. The cause of this merits from the artist, more than from any other perhaps, special attention. He is called to represent the external world, as I have just explained, under two forms. What are these forms? How is it that the contemplation of each affords pleasure? and how is it that the highest excellence of the modified form—the landscape as influenced by man's hand—is to reproduce and represent, combined with the mode and peculiar aspect, a portion at least of that aspect which Nature bestowed to the surface of the globe?

If we gaze over the landscape, in the expanse of which, however vast or limited, human agency and human labour, human thought and human contrivance have had no share, we uniformly derive an amount of deepfelt pleasure from such a glance as nothing else gives or can give, saving always the ecstasy derived from a contemplation of the perfection of all Nature's works—woman, the perfect human figure, clothed with those forms which the immortal chisel of the Greek sculptor embodied in that marble which enchants the world.

As I wandered by the banks of the Rio d'Infante, and climbed the heights separating the valley of the river from those beauteous grassy and umbrageous plains, through which wind their way the clear and crystal streams of the Koonap, gaining a view of the vast plains of "*het land den Caffre*," themselves shelving towards the Indian Ocean, in the distance reposed in solemn grandeur the Winter Bergen and Anatolo Mountains, through whose wooded and deeply-tangled

ravines once roamed freely the dreaded Caffre, I could not fail to recollect that on the spot where I then stood Le Vaillant gazed on that identical landscape! Simple and unaffected lover of the simple and beautiful in nature.

But how was it that the landscape before me transported me with pleasure? No castle rose to view, nor churches nor spires, turrets nor palaces; man nor man's hands had touched this field. Nature prevailed everywhere: antelope and ostrich, zebra and quagga, bustards of all hues, birds of every plumage, decorated this glorious landscape; dark forests clothed the steep slope of the Winter Bergen nearly to that summit whose grassy and shelving rocky crown reached far into the heavens. Why is this scene so beautiful, seen as I saw it, or painted on canvas, or imitated by the noble domain of an English park? The same principle pervades all, and it is to this the artist must look.

There is a feeling in the human mind, that is, in the mind correctly formed, which no artificial condition, no conventionalities, no civilization can overcome; it is the feeling which connects it with the earth, its parent—its mother earth teeming with life. In her winter garb, man feels the desolation around him; in her black robes of winter, his instinctive sense sees the emblems of death, although his experience and his judgment and his reasoning mind tell him that Nature will revive. But spring returns, and all that lives rejoices. This is the connecting link between him and the decorated earth, the parent from which he came, unto which he returns. The landscape I have described, whether formed by Nature or *imitated* by human hands, calls forth feelings and passions he has no language to describe; a chord in his brain, which

civilization had masked and thrown into abeyance, but could not destroy; the chord which makes him independent of artificial things, reminding him that he was made to walk and hunt on that landscape unfettered, unrestrained. With this landscape he cannot but choose to sympathise; it is the field on which Nature first placed him; his whole existence harmonizes with it; his physiological destiny proclaims it as his own; from it he sprung—to it he must return. So also it is, that whilst gazing on such a landscape, his soul perhaps for the first time feels independent.

To match such scenery is the object of landscape-gardening, connecting the Italian terrace with the distant landscape, and that again with the remote mountain range, without let or hindrance, hedgerows, enclosures, or ring-fences, park-walls, and gates. It is for this that the man of taste avoids all objects recalling to the mind of the spectator human contrivances, human artifice, signs of industry, of utility, at whose ominous sound truth and true taste flee away. The artist who reflects on this will best know how to avoid error. He will readily discriminate between the Cockney picturesque and the sublime and beautiful; in a word, the natural, the truth, will stand revealed to him, and if his hand be skilful enough to place this on canvas, the admiration of the world must follow. Let him remember that the virgin forest is beautiful, so also is the desert, the deep dark moss, the black extended heath. If you doubt it, look at the Karoo on a summer eve, or at Torthorwald.

Landscape gardening, then, is one of the Fine Arts; it proposes to place before men's minds that view of nature which shall call forth man's deepest sympathies—his sympathies with the earth from which he

sprang; when it forgets this principle it fails. It is the same with all the Fine Arts. They can have no other object but to recall those instinctive springs or chords which connect man with the material world; and this leads us to a brief consideration of that Fine Art, for such no doubt it is, which, by the medium of outline, that is, form and colour, succeeds in placing before men's minds not only the visible organic and inorganic worlds, but does so in such a way as to meet a response in all human breasts.

OF PAINTING AS A FINE ART.

If it be true that sculpture alone is high art, it is nevertheless certain that, by outline and colour and composition, the master artist can attain on canvas the utmost extent of his wishes, that is, a world's admiration. It is composition which places painting on a level with sculpture. What I mean to say here respecting painting must be brief. It is not within the scope of this work, nor is it necessary that I or any one should be called on to prove painting to be one of the Fine Arts; nevertheless, in the hands of many artists it scarcely amounts to a Fine Art.

The art itself has been subdivided by some into figure-painting and landscape. The external world gives no grounds for this distinction. The figure, that is, man, draped as well as nude, is a part of nature, a part of the external world; one of nature's material manifestations. He who can draw the human figure well can draw everything else in the world. Study, therefore, the human figure; let it be the beginning and the end; not that you propose to devote your attention exclusively to this. Nothing of the kind is necessary; but master it if you can, being assured

that all the rest will follow. In this work I have endeavoured to explain to you the sources or materials to which you may apply, or which you may use with safety; I need not re-enumerate them here. Seek the society of the great masters of the art; you will derive much from their hints and observations. Draw especially from the antique marbles; these are perfect. Fill the mind with "the beautiful," using it when required, and suffering its suggestions always to prevail. But first, I admit, comes truth, without a direct perception of which the poet is no poet, and the painter no artist.

What painting might now have been had not the antique marbles been discovered, it were impossible to say. Angelo, Urbino, Da Vinci drew their inspirations from them; *they did not imitate them*, nor copy them,—be aware of this; they simply filled their minds with the contemplation of these matchless statues, leaving the rest to their own genius and ability. Herein lay the grandeur of these lofty minds: they imitated, they copied no one; alive to the fact, that the ancient sculptor had carried his art to the highest possible perfection, and taking for granted that the painters of that day were equal at least to the antique sculptors, though their works unhappily had not survived,—they, though belonging to races of men not remarkable for inventive power, or at least in this respect not equal to the Greek, avoided all servile copying, but looked directly at Nature and the world around them. The result was, that they drew from her another expression; they made their way into the sympathies of the spectator by another road. Raphael painted the Madonna in the likeness of an Italian woman, of no great beauty, but of matchless expres-

sion; Guido Beni added, in his conception of the Madonna, beauty of form to expression; Angelo anthropomorphized the Eternal in his Last Judgment; and Da Vinci represented by the pencil and brush that Supper, the last, on which the hopes of Christian men rest—all works beyond compare. And why are they so? The answer is simple enough; they are perfect.

As I stood intently gazing on a very beautiful engraving of the "Cena" of Da Vinci, admiring it in all its details, and arriving unconsciously (for I did not know the fact at the time) at the conclusion that the work was perfect, that it had been deemed so by a master mind (Raphael), greater, if possible, than that of Da Vinci himself, there stood by me a young lady, an English lady, of strong mind, deep sympathies, clear judgment, and every way intellectual. To her I pointed out some of the beauties of the "Cena," and especially the difficulties the artist had overcome, and more especially the singular fact that, although representing a group of men, many of whom had been and even then were mechanics, no coarsely-made vulgar hand appeared on the canvas; strong hands there were, but nothing boorish, nothing vulgar, nothing deformed. Whilst thus engaged, I was suddenly startled from my reverie by my fair companion pointing out to me, that on the table before the Holy of Holies stood bottles and glasses of a material and shape which could not have existed in the days of the Apostles. But although somewhat startled, the current of my thoughts being thus dislocated, and cast "from heaven to earth" by this discovery of an anachronism in a faultless work, as I considered and consider it to be, I was not surprised. Experience had told me that

woman's mind had no real sympathies with the Fine Arts; that she does not understand their meaning nor their object. Nature's landscape itself, whether spread out before her, or represented on canvas, she passes heedlessly by. Her mind is a matter-of-fact mind; delicate, tender, soft, but clear, observing of detail, devoted to the real. To her, next to herself, man is all. Fashion obeys—she commands and creates it: jewels, rich garments, tapestry, gorgeous carpets, display.

Though thus prepared to appreciate and understand the lady's remark, I confess being startled to hear the same remark precisely repeated by a well-meaning person, who seemed to have devoted a good deal of attention to ancient sculpture and painting. He had clearly mistaken the aim of art, and was misdirecting all who listened and believed.*

* I heard the remark made by a lecturer on the Fine Arts in Gower Street. These lectures were delivered in May, 1851.

CHAPTER III.

ANCIENT ART—COPTIC ERA—EGYPTIAN ART—RE-
MARKS ON THE REMAINS OF COPTIC SCULPTURE
IN THE BRITISH MUSEUM.

DIFFICULT questions arise from time to time in the history of the Fine Arts. The conflicting opinions offered in respect of these difficulties contribute greatly to embarrass the student, and induce him to think either that art has not and cannot have any fixed principles—that everything in art is in fact conventional—or, that the Fine Arts, like other human operations, arose from small beginnings in the East, gradually improved as they moved westward, to receive at last their consummation in Greece. The following remarks on the condition of art amongst the ancient Egyptians or Copts will, I trust, disabuse the mind of the student in respect at least of some of those theories.

The following brief remarks on the condition of the Fine Arts in ancient Egypt may assist the student in solving some of the difficulties which beset the history of ancient art. They explain some of Winkelman's observations; they bear on the question of mannerism in art; lastly, they elucidate, it is hoped, some of the questions in respect of art which a true history of race alone can solve.

Herodotus, usually styled the Father of History,

reports that the Egyptians of his day were *black men*. This is not impossible, though by no means probable. But rather than believe that the historian really never was in Egypt, it may be assumed that by the term



The Young Memnon.

“black” Herodotus merely meant that the Copts of his day were of a dark colour when compared with European Greeks, his countrymen. However this may be, one thing is certain, namely, that the remains of the Coptic race now in Egypt, and generally understood to be the descendants of the ancient Egyptians, are comparatively a fair or sallow race, neither Nubians nor Negroes, nor Hindoos, being a race apart from all others: that they still exist in Egypt, though much reduced in numbers, and that they resemble strongly in their features the statues and drawings of the ancient Egyptians. Now many of the original busts and drawings, and entire figures of the ancient race of the Copts, are at present in the British Museum; some of these have an antiquity of at least 4000 years. The bust of Amenoph the Second, sometimes called the Young Memnon,* presents perhaps the utmost perfection of ancient Coptic art. But the features of this admirable bust, which so well merit the study of the artist, are not those of any black race, but strictly Jewish, Chaldaic, Assyrian. The same remark applies to all the other busts and drawings I have ever seen of the Coptic race.

A careful examination of the features of this bust should be made by the artist, and a comparison instituted with those of the Jewish race; he will in many cases find them to be all but identical. There is the same sloping forehead, elongated full eyes, stretching towards the temples, root of the nose narrow, nostrils enlarged, extended aperture of the mouth, sloping or retreating chin, and elevated ears. These features mark, then, not merely the present Jew but also the ancient Copt, and probably many more Syrian and Asiatic races.

* See page 161.

An ingenious friend suggested to me that the Jews were probably of African origin. This is a question with which artists have nothing to do as artists.

What the student ought to attend to in his study of the different features of the various races of men is the leading characteristics distinguishing one race from another, not merely the white from the black, the fair from the variously coloured, but all the races of men from each other. The black race does not differ more from the fair, than the Jew and many fair races do from each other and from the modern European. The ancient Greek, for example, differs so widely from the Egyptian or Coptic, that all stories tracing the Greek of that day to or from the Egyptian may be regarded as pure fables, unworthy the name of history.

The influences which fettered genius in ancient Egypt were probably, first, the physical organization of the Copts themselves, thus seldom or perhaps never presenting absolutely fine forms to the eyes of the native artists; second, the exclusive character of the race; their dislike to foreigners, and perhaps their almost isolated condition from the surrounding nations, must have given strength to these sinister influences; third, the national character of their despotic priesthood, which cramped and trampled on human thought. Under these baneful influences, human genius had not a chance of escape. They prevail at this moment to some extent in England, and proportionably influence art.

Yet at times men of high thoughts and great artistic dexterity must have appeared among the ancient Copts, the bust of the Young Memnon is a proof of the former; and the artist who sculptured "the closed hand," in the Egyptian Gallery, was

clearly a lover of absolute truth and of the beauty of fine forms. We shall see presently how widely the Greeks differed, especially as regards art, from this ancient Coptic race, with whom they have been often but erroneously affiliated. That the Coptic race showed in their labours, especially architectural, a grandeur and sublimity to which no other race approaches, I freely admit: the ruins of Thebes and the Pyramids speak for themselves.

SCULPTURE—GRECIAN ERA—THEORY OF THE
BEAUTIFUL.

Sculpture alone is high art. Its aim is to represent the beautiful in form; but the beautiful in form must also be perfect. Sculpture, then, is the highest of all the arts; for it represents to human eyes those forms, the human figure, which all Nature proclaims to be the foremost manifestation of the material world. A theory of the beautiful, then, is not a fanciful idea—not an ideal or unreal thing. Beauty is not conventional nor comparative, as was the opinion of Voltaire, Alison, Haydon; nor wrapped in the semblance of youth, as Winkelman too hastily concluded; nor based on low or grovelling *utility*, as Paley taught and Socrates declared. The beautiful and the perfect are absolute, fixed, and determined; impersonation of Nature's ultimate aim; part and parcel of her grand scheme; a fragment of that mighty law or mind pervading, directing, creating the universe.

It were misplaced in a work of this kind, a mere manual of art, a history, as it were, of the external forms of man and of the internal, in so far as they influence and affect the external, to attempt more than a mere outline or brief analysis of the principles which

first led me to adopt the following theory, as the one which regulated the labours of the ancient masters, influenced all their thoughts, and ultimately led them to the execution of works never to be excelled, because perfect; never to be looked on with ordinary thoughts, but as containing within themselves "the beautiful," not to be surpassed; to be admired and almost worshipped as emblems of a genius nearly akin to the unseen, unknown, creative power itself.

If you place before you a very young infant, undraped, whose span of life measures as yet but a day or two, you may at once observe, that is, in case your sight be adapted to distinguish the beautiful and the perfect in form from all that deviates from it, that these *infantile forms* are unpleasing; nay more, that they are even occasionally frightful. No great master of art would ever think of copying such forms in marble or of tracing them on canvas: the effects he sees; the causes remain hid. With the practical men of all ages this would be sufficient; enough that such forms are unpleasing. What signify, says the practical man, what the causes of this may be, provided we know the fact in the effect?—a common way of reasoning, if it can be so called, with the great mass of men, who, having no desire to know the unknown, remain in ignorance of the causes of all things, using, instead of a sound theory, some extreme metaphysical abstraction, which they dignify with the name of metaphysics or moral science.

The human mind, when endowed with the exquisite power of correctly perceiving form, is fitted for the discrimination of the perfect from the imperfect, the beautiful from the coarse, the proportioned from the disproportioned, the fully *developed* from those forms

which still show imperfect development. The forms of the newly-born babe show no proper development; they are in a transition state; they want proportions; they represent certain approaches to brute forms—brute forms which still exist, and to antique forms, relics of a world which has ceased to be. These forms, the embryonic, are still within the grasp of the laws of unity, which regulate their growth up to the moment, perhaps, when appearing in the world they then first form a part of it. The laws of individuality and of species have not yet had time to exercise their full influence, developing the tiny infant into that full-grown, glorious form, human and wonderful, it may afterwards assume. The fine and correct mind sees this; it may not be able to give a reason for it, but it dislikes such forms or shapes, and avoids representing them in art. I appeal to the practice of all the great masters for the truth of my views or theory.

In the *persistence* of these infantile forms to the adult condition of man and woman, may be traced most of the varieties of human forms. It is, in fact, the persistence of the law of unity which leads to variety; the prevailing of this law against the physiological law of specialization leading to the fully-developed, perfect human form.

Innumerable examples might here be given of these great laws. Look at the man or woman, for example, with too short arms or limbs; it is the infantile form persisting to the adult state. The semi-bent arms and limbs of some represent merely the transition forms; the short neck, narrow haunches, straight vertical backbone, short and scraggy neck, are all foetal forms persisting to youth and manhood.

Let us now trace the infant to the child. Observe

the beauty of its feet, and hands and arms, and face! How lovely is the child of two, and three, and four years old! And yet this child, so beautiful, will not bear being represented in marble or on canvas undraped. How is this? I will tell you: theory, correct theory, can alone do this. The child is in fault in all and every one of its proportions; the word beautiful, then, is not strictly applicable to it. It is lovely and adorable, for a reason I shall now explain to you, but it is not *beautiful* in the strict sense of the term; for absolute beauty and perfection centre only in the fully-developed form. But the child obviously is not fully developed; it is, on the contrary, undergoing metamorphoses from the hour of birth to twenty-seven in woman, to thirty-six in man. Up to this period the changes are, or at least may be, in his or her favour; from that period until sinking into the earth, from which he sprung, all changes are against him.

In what then does the beauty, or rather loveliness, for this is the proper term, of the child consist—of the child from two to ten, of the youth from ten to puberty, come when it will in man or woman? It cannot be in the youthful forms, for these are imperfect; it cannot be in the presence of life, for the dead child is as lovely as the living; it cannot be in the mere *years* of the child, for the diseased and emaciated child or youth is an object of pity, of compassion, or of horror. The secret lies deeper than this; to discover it, we must descend to the great springs of action, the sentiments, passions, and instincts of humanity; of which some are common to us with all living sentient beings, others peculiar to mankind. For these deep and innate feelings, form-

ing an intrinsic portion of our nature, we have no adequate expressions.

In my brief outline of the history of landscape-gardening and landscape-painting I have alluded to one of these instincts, connecting us to the living external world. I now advert to another; it is the love of life—not the fear to die, to go we know not where, and to sink into nothing. This is not the love of life I speak of now; it is the deep instinct by which we perceive in the external world whatever constitutes an emblem of life, contrasting it with whatever is an emblem of death. The healthy, lovely child or young person is the most agreeable emblem of the eternal life of Nature; being human, it best satisfies the craving of the soul for eternal life. All one's hopes are there; our hopes of to-morrow, perhaps our hopes of an hereafter. But be this as it may, this emblem of life before us, this lovely child, assures us that the life of Nature still lives in those forms, and in that manifestation which, being human, we most love and adore. And now observe how we love all emblems of returning life, and dislike all emblems of approaching dissolution. The young and bright green leaves of spring, the rich verdure of the coming pasture; the lamb is sporting on it, another emblem of youth and of eternally-renewing and reviving Nature: all these are lovely as producing one feeling. Mark, on the other hand, the leafless tree of winter, the embrowned and faded pasture, the blackened heath, the wintry sun rolling on to the brumal solstice; all emblems of decay and death. What makes that landscape before us unpleasing and unworthy the artist's labour, though bright skies and sunshine are present? It is this: the forest seems

dead, although our reasoning judgment tells us it is not so, that spring will come again, and life and all its joys; but our instinct listens not to its suggestions, accepting only as real that which the external world presents. A winter scene even in those countries where a warm sun forbids us feeling chilled, is still to the unerring instinct a winter scene—an emblem of death. I first observed this *fact*, for it is one, in South Africa. To produce this effect, you require no snows, nor ice, nor frozen lakes; put on the canvas the leafless tree, the withered pasture, the emblem of death; that is enough. So it is with youth and human forms: the young and healthy suggest eternal life; the diseased and emaciated and the aged usually call forth feelings of repugnance, compassion, or horror, as the case may be. We see in such appearances the emblems of dissolution and of death.

Man, though occasionally rational and always a reasoning animal, has yet deep sympathies, innate and instinctive; these form the basis of his character. His mind is no *tabula rasa*. A love for the emblems of youth is one of these; his fondness for gazing on the decorated earth, another.

Winkelman, then, was in error when he proclaimed beauty to reside solely in *youth*; that the young alone are beautiful. Another,* whose abilities merited a better reward, bewildered in the difficulties besetting this great inquiry, the discovery of the beautiful, was compelled, after maintaining nearly every other hypothesis, and rejecting them so soon as announced, to take refuge at last in an abstract proposition, first *enounced* by myself, that in *woman alone* resides the perfect and the beautiful; but even this view, as not being arrived

* Haydon.

at by legitimate deduction on his part, he also mistook. For using instruments he did not understand, he extended the view (it could not be called theory as he viewed it) to other objects in nature, other manifestations of the material world: hence arose lamentable contradictions astonishing all his friends. I need not further advert to them here.

THE BEAUTIFUL AND THE PERFECT.

In order that the young should be objects of love and tender feeling, it is necessary that the arms and limbs should have taken on them some of the forms they more fully assume in the adult. The torso comes last in the history of development of form. The face first acquires definite forms, which, though not beautiful, are lovely and expressive; but, above all, the adipose cellular layer interposed between the integuments and the aponeurotic and cellular sheaths of the muscles must be full, strong, and juicy. By its means all traces of the *interior* are concealed, and every emblem of dissolution and of death removed from the view. When to this the progress of development with years, that is, from seventeen to twenty-seven—the highly specialized and noble forms of the adult woman—are superadded, that is, the beauty of form to the loveliness of youth, Nature has then attained perfection. This the ancient sculptors saw: their genius led them to discover wherein beauty resided; their grand ability enabled them to represent this beauty in marble and on canvas. Their genius and ability overcame all difficulties; the results were, in ancient times, the Venus and the Apollo; in more modern days, the Cartoons of Raphael, the Cena of Da Vinci, the frescoes of the Sistine Chapel and the Vatican.

Paradoxical as it may appear, the theory I now enounce must have been understood and acted on by all great masters since art first appeared. Confined to no nation, nor perhaps to any race, these immortal men appeared from time to time, at distant periods, to astonish, as it were, the human race, to raise the minds of men above the low and grovelling mechanical world of every-day life; the model-world of the citizen and the statesman; that world which changes its servile nature at the bidding of a vulgar mob, or coarse and brutal tyrant. They proved by these works that the pretended *ideal* was the *real*. They studied Nature's laws, placing the absolute truth before men's eyes; but they never went beyond Nature. The Centaurs, Fauns, and Satyrs of antiquity form no exception to this.

The absolutely beautiful, then, and the perfect resides in the adult woman; in the statue of the Venus, and in the living form from which that was copied. That form occurred in Greece; it occurs now—rare, it is true, for against so high a specialization of form there are at least a million of chances that, in some part or other of the frame, infantile forms may persist, marring by their presence the perfect form. But all this the ancient masters understood, working agreeably to the laws of the theory I here propose. Read Homer, the greatest of all artists, in the loftiest sense, and you will find that he perfectly understood this theory. But, above all, place before you the foot or hand of the Venus of antiquity, and do your best to improve it: you will find that you cannot; it admits of no alteration. Of all forms it is the most remote from the *internal anatomy* of the human body. Observe this carefully; draw, for example, the skeleton

of the modern foot; next design it with all its tendons, muscles, ligaments; then draw over this anatomical foot, if I may so say, an outline following its curve, and you will have a drawing of the ill-shapen, long, narrow, skeleton-looking foot of so many English women. Now place before you the foot of the Venus; see in what it differs from the narrow English foot; draw it again and again, fill your mind with its form, for it cannot be surpassed, and so with every other part of the body.

To render this work as useful as I can to the student, I here subjoin the application of the theory to the female figure, to a statue seemingly antique, or at least sculptured in accordance with the glorious forms of ancient Greek statuary. What I recommend to the student and amateur is to read the subjoined description in presence of the statue, which he will find in the British Museum; but in its absence, any other original Venus or good cast of any antique Venus will suffice. The principles enounced apply to all or to none. In the antique Greek figure alone resides perfection; all nations and all races must yield the palm to Greece.

OF THE ELGIN AND OTHER MARBLES IN THE BRITISH MUSEUM.

Although the collection of statues in the Museum be not of first-rate quality, with the exception of the remains of the sculpture of the Parthenon, usually called the Elgin Marbles, I have thought it right to say a few words respecting them. The mutilated condition of the more valuable, that is, the Elgin, renders it a matter of great difficulty with the student how to

profit by them. The first statue, as being the least objectionable one, is a figure of a full-grown woman above the natural size. I have called it the Townley Venus, as it used to stand amongst the collection which bears that name. From this figure the student may I think draw safely. If in his sketches he reduces it to five feet four inches, which I think he ought to do, let him be careful in his management of all the proportions and requisite re-arrangements caused by such reductions.

The attitude of the figure is one of repose; the entire surface is life-like, and the figure is half-draped. The skill with which the antique artist arranged the hair, so as to balance the figure on the trunk, is observable in this statue. The ear, finely formed, is admirably placed; the face oval and classically beautiful, not a trace of the interior is to be seen anywhere, and yet certain lines dependent on deep structures, as the ridge and external angles of the frontal bone, sufficiently characterise the full-grown woman from the child or girl. Thus we shall find the Greeks ever acted, never forgetful of the truth, nor seeking to exaggerate beauty by meretricious ornament or injudicious incongruities.

The distinct setting-off of the nose and other features of the face from the maxillary bones or more solid compages of the face, is the grand and leading feature in the ancient Greek head, distinguishing it from all oriental nations, Jew, Copt, Assyrian, etc. It is perfectly well seen in this statue. The eyes, as in all classic heads, are deep set; this was the grand peculiarity of the classic head.

To show that the Greek sculptor whilst he never stooped to any littleness, yet never neglected detail,

the student's attention is called to the individuality represented in the supra-orbital ridges in this figure. On one side only the artist has marked the supra-orbital foramen *as a notch*, a variety by no means uncommon in different individuals.

The nostrils are firm, but display no traces of the cartilaginous skeleton supporting them, nor any indication of the action of the deep sympathies of the chest, abdomen, and pelvis; the same may be said of the mouth. In the neck, which is admirable, a little fulness marks the position of the sterno-mastoid muscles; that is all. In the trunk and arms, it is worthy of remark that the contraction of the deltoid in raising the arm is shown more by a flattening of the upper part of the bosom of the same side, than by any display of muscular power. About an inch and a half, or at most two inches above the navel is the waist, or rather the slenderest part of the torso in woman. As was to be expected, the outlines of the tendons and muscles have been everywhere concealed. Depressions, grooves, gentle hollows, and elevations mark the presence and the influence of bones, muscles, tendons, and aponeuroses, that hideous interior which the modern artist is at times so anxious to display. The character of the abdomen in the figure is perfectly feminine; in the lower part, cutaneous, transverse grooves may be seen, which the artist must not neglect to chisel; it is the neglect of such details which causes his figures to resemble statues; their observance gives life to the statues of antiquity.

Study well the drapery and the balancing of the body on the feet. The limbs are perfect, so also is the disposition of the drapery; on none but a fine woman can drapery be so arranged, or group itself into such

graceful folds. The use of the lay figure by modern artists produces nothing but hideous burlesques.

Of the other marbles in the Museum I need say but little. The student cannot draw too frequently the least injured portions of the Elgin Marbles. If he has studied carefully the elementary instructions contained in the preceding chapters of this work, he will I trust experience little difficulty in correctly reading the meaning of the figures before him. Of one thing he may be assured, that they are faultless. It is quite an error to suppose that the Greek neglected detail; he despised only pedantic littleness; but his love of truth in art, poetry, and romance was never equalled.

There are no fine male figures in the gallery, and it may be remarked that as it now is, it cannot be viewed as a gallery of sculpture. Hence one reason why the student repairs to Italy.

Of the athlete I have already spoken. The Laocoon is not an athlete, but a finely-formed man. Homer, and after him Virgil, described the athlete perfectly: the bull-necked prize-fighter; the Ajax, of matchless courage, intrepidity, daring; fearless of man, but un-intellectual, gross, and brutal.

THE END.



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